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CIVIL REGISTRATION AND VITAL STATISTICS: A COLLECTION OF PAPERS

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CIVIL REGISTRATION AND VITAL STATISTICS: A COLLECTION OF PAPERS

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20th Anniversary Volume

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Dedication

This volume is dedicated as a memorial to Forrest E. Linder (1907–1988), founder and first president of IIVRS, for his lifetime of service toward the worldwide development of vital and health statistics. In 1935, Dr. Linder started his long career of public service. He served in various capacities in the Division of Vital Statistics, U.S. Bureau of the Census, from 1935 to 1940. In this period he spent a year in Uruguay where he provided technical assistance to the Government of Uruguay in developing a vital statistics system.

This was the beginning of Dr. Linder's interest in international vital statistics. He followed up the Uruguayan experience by assisting in the establishment of an international vital statistics program in the Bureau of the Census that provided training to civil registration and vital statistics officials of foreign countries as well as consultation services to Latin American countries.

During World War II, Linder served as the Assistant Chief of the Medical Statistics Division, U.S. Navy, where he had the monumental organizational task of establishing a morbidity reporting system and a data processing capability to provide current morbidity and mortality statistics for a greatly expanded wartime navy personnel. After the war, Linder went to the United Nations in New York where he became the first Chief of the Demographic and Social Statistics Branch of the Statistical Office. There, he was instrumental in putting out the first U.N. *Demographic Yearbook*, initiating a series of regional seminars on vital statistics, and setting up training programs for staff in the developing countries.

Linder returned to Washington in 1957 to become the first Director of the National Health Survey Program that had just been established in the Public Health Service. The National Health Survey Program was designed to complement the ongoing national mortality statistics program by showing various facets of morbidity on a nationwide basis. When the National Health Survey was merged with the National Office of Vital Statistics in 1960, he became the first Director of the new National Center for Health Statistics.

In 1967, Forrest retired from his civil service post to become Professor of Biostatistics at the University of North Carolina and the first Director of the International Program of Laboratories for Population Statistics, more popularly known as POPLAB. While at POPLAB, Professor Linder began to lay the groundwork for an international organization that would provide a technical forum for the professionals in the national civil registration services.

He noted from his long national and international experience with CR/VS that the heterogeneous group of national officials responsible for civil registration had no international professional association to which they could belong. The national offices responsible for civil registration, the only continuous source of population growth data, are scattered among the various ministries (the Home Ministry, the Justice Ministry, the Supreme Court, the Health Ministry, the Central Statistical Office, etc.) and the responsible national officials are lawyers, doctors, etc. This diverse group of officials had no international focus and were working more or less in isolation. In 1974, Dr. Linder founded the International Institute for Vital Registration and Statistics (IIVRS) to fill the need for an international organization to encourage and promote the improvement of civil registration throughout the world, with special attention to the developing countries. When Linder reached the mandatory retirement age at the University of North Carolina, he turned his full attention to the affairs of IIVRS as its first President and Executive Director.

During a career than spanned half a century, Dr. Linder had an impressive list of important technical publications. He served on international and national advisory committees such as the World Fertility Survey Steering Committee, the USAID Research Advisory Committee, the World Health Organization Expert Committees on Health Statistics, and the U.S. National Committee on Health and Vital Statistics. He received the Distinguished Service Award from the U.S. Department of Health, Education and Welfare, and the Bronfman Prize from the American Public Health Association.

Either by design or by accident, Dr. Linder made a major career change about every 10 years. In each new role, he turned over new ground. His was a sound pioneering effort at the highest technical level. It is noteworthy that one common thread ran through his long career and that was an abiding interest in the international development of vital and health statistics. No man has done more to advance that cause.

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Preface

This collection of papers is being published in commemoration of the 20th anniversary of the founding of the International Institute for Vital Registration and Statistics (IIVRS). Most of these reports are part of the IIVRS publication series known as the Technical Papers describing national registration and vital statistics systems, discussing methods for improving registration of births and deaths, and presenting methodological problems. This series of publications has been made possible by contributions solicited from experts in the field of civil registration and vital statistics. The valuable contributions made by these individuals are hereby gratefully acknowledged.

The 20th Anniversary Volume is comprised of papers selected because of their wider application to problems of civil registration and vital statistics in the various countries. As such, it represents a unique source of information on civil registration and vital statistics issues and problems.

The program of the International Institute for Vital Registration and Statistics, including the publication and distribution of this volume, is supported by grants from the United Nations Population Fund (UNFPA). The UNFPA and the IIVRS do not necessarily endorse the views and recommendations in these documents. There are no restrictions on the use of the material in this volume. Material from this publication may be quoted or duplicated without special permission.

Iwao M. Moriyama
Executive Director
IIVRS

HISTORICAL DEVELOPMENT OF CIVIL REGISTRATION AND VITAL STATISTICS SYSTEMS[1]

United Nations Statistical Office

A civil registration system records the occurrence of the events of birth, death, marriage, divorce, annulment, separation, adoption, legitimation and recognition in accordance with the legal requirements of a country. These events are all related to an individual from life to death and all the changes in civil status which may occur during the individual's lifetime. The registered information can be compiled as vital statistics providing a description of the frequency and characteristics of the vital events. To place civil registration and vital statistics systems in their proper perspective, it is useful to have an understanding of the history of those systems and the efforts of countries and of international organizations to improve them.

Development of Civil Registration and Vital Statistics Systems

The beginning of civil registration in Europe may be traced back to the fifteenth century in Spain, when registers to be maintained by parish priests were introduced. The systematic registration of births and deaths under secular administration was established only in 1871, modeled closely after the Belgian system. In turn, the Belgian system followed the general guidelines of the Napoleonic Code of France.

In 1538, the clergy of **England** were required to record baptisms, marriages and burials. After many reforms in Britain, the modern registration of births and deaths and the solemnization of marriages developed under the Births and Deaths Registration Act and the Marriage Act, both of which were enacted in 1836 and came into operation the following year. Under these Acts, the post of Registrar General was created to supervise the work of local civil registrars in areas based in unions of parishes. But it was not until 1874 that civil registration became compulsory. Various reforms were brought about through the years to improve the system. At present, the Marriage Act of 1949, the Registration Service of 1953 and the Births and Deaths Registration of 1953 are the main statutory powers to register marriages, births, deaths and fetal deaths.

An important landmark in the history of vital statistics is the publication in London of the old Bills of Mortality. The earliest known Bill of Mortality is believed to have been published in 1532. The weekly bills listed the number of deaths from plague and other diseases in the various areas of London. For over 100 years, bills consisting of a list of baptisms, marriages and burials were compiled by parish clerks before anyone conceived of the possibility of making an analytical study based on these observations. In 1662, John Graunt published a series of inductive observations under the title *Natural and Political Observations*, based upon the Bills of Mortality.

In **France**, civil registration was introduced in the sixteenth century in the form of parish registers, and in 1792 civil registration was secularized when the communal and municipal mayors were charged with the maintenance and safe custody of civil registers. A landmark was introduced in 1803 when civil registration became compulsory under French Civil Law (renamed the Napoleonic Code in 1807). The corresponding section of the Code reinforced the

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[1]This article was abstracted from Chapter I of the United Nations *Handbook of Vital Statistics Systems and Methods*, Volume I, *Legal, organizational and technical aspects*, Studies in Methods, Series F, No. 35, 1991. That document contains a discussion of vital registration efforts in ancient times and the Middle Ages, as well as other details and examples for modern times. It also contains references not included in this abstract.

responsibility of the State for recording births, marriages and deaths. It set forth exact provisions for determining who should report the event, who should record it and what the record should contain. All of the provisions of this Civil Code were concerned with the legal and civil rights of an individual because civil rights could be granted only by the state, and proof of one's claim to such rights was dependent on official registration. The individual as the unit of civil registration was firmly established by the Code. In France, this system, with subsequent improvements over the years, has continued to the present day and is the source of complete vital statistics of births, deaths, late fetal deaths, marriages and divorces for which individual statistical reports are filled in at the time of registration. The influence of the general guidelines of the Napoleonic Code can be found in the organization of civil registration throughout Western Europe, parts of Northern and Latin American countries and areas of the Middle East which came under French rule.

In **Northern Europe**, the first systematic parish register was in Sweden by 1608, followed by similar registers in Finland (1628) and Denmark (1646). These were actually the earliest known population registers in Europe. However, the organization of vital statistics made great progress during the nineteenth century. The enumeration aimed at finding the population which *de jure* belonged to the parish and which was to be found in the parish registers, even if the persons were living elsewhere in the country or abroad. Clergies were responsible for registration of births, marriages, deaths and migrations. It is linked with the population register for updating of population change. Sweden probably has the longest unbroken series of vital statistics, starting about 1750. By the third quarter of the present century, all European countries had attained complete and reliable vital statistics.

In **Peru**, ancient Inca record-keeping mechanisms known as *quipus* were replaced by parish registers during the three centuries of Spanish rule. In 1852, three decades after Peru became independent from Spain, civil registration was secularized. Municipal authorities were made responsible for recording vital events.

In **Northern America**, a systematic organization of civil registration was introduced by written regulations in the British colonies of Massachusetts Bay and New Plymouth early in the seventeenth century (1639). Government clerks were made record keepers and, even more important, births, marriages and deaths were recorded rather than baptisms, weddings and burials. Massachusetts was the first to record the actual events and their dates rather than the dates of the subsequent ecclesiastical ceremonies. However, civil registration was not established in the United States until 1909 when the Census Office became responsible for collecting and compiling national vital statistics and for establishing the death registration area. Some 15 years later, the birth registration area was established. With the passing of time, each state and territory of the country began to establish autonomous civil registration systems. There are 55 different systems administered either by the state statistical office or by the health services of each state and territory. All of them are compulsory and cover all areas and population of the country.

In **Canada**, while provision was made almost since the origin of each province for the registration of vital events, no national system of vital statistics existed until 1918, when a cooperative arrangement between the national Government and provincial authorities came into effect under the Statistics Act of 1918 which provided for the creation of the Dominion Bureau of Statistics (later renamed Statistics Canada). Since then, uniform procedures for vital statistical reporting have been introduced and copies of registration records have been supplied to the central statistical agency. The national statistical service provides a coordinating, advisory and processing service for the provincial registration authorities who are in turn responsible for all legal and administrative aspects of the system.

In **Egypt**, registration of births and deaths dates back to 1839, but it was not compulsory until the end of the century. The decree promulgated in 1912 provided for the compulsory notification

of births and deaths occurring in Egypt, and the health bureaus of the Ministry of Health were made responsible for the registration of births and deaths. In 1960, the Department of Civil Registration was established in the Ministry of Interior, to which was given custody of all vital records (birth, death, marriage and divorce). The decree of 1965 made further modification in the registration system. The responsibility for registration of births was returned to the health bureau, center or unit, or to the chief of the village in areas without a health office. Marriage and divorce records before 1962 were in the hands of the religious and judicial authorities concerned. They became compulsory in 1963 with the establishment of the Department of Civil Registration in the Ministry of Interior.

In **China**, a civil registration system was reported to have been established as early as in the Western Zhou Dynasty (1100–771 B.C.). A more comprehensive registration system was developed in the fourteenth century. During the period 1741–1775, the registration system was overhauled and entrusted to the *Baojia* machinery, which comprised the administrative units below the lowest formal government apparatus. Information such as the number, age and sex of the occupants of the household, their occupation, property and amount of tax payment were recorded. The *Baojia* registration system was more or less faithfully executed during the period 1776–1885 although regional underregistrations were unavoidable in different parts of the country. In 1958, a National Household Registration System was established and gradually registration reached the whole population. Vital statistics such as population size, births, deaths, marriages and divorces have also become available although detailed characteristics of the vital events are not registered or compiled.

In **Japan**, the modern civil registration system originated and developed as an integral part of the family registration system according to the provision of the Family Registration (*Koseki)* law. The first *Koseki* law of 1872 had been promulgated with the major purpose of registering the current address of the resident population. In 1898, the *Koseki* law was amended to certify the kinship between the head of the family and other family members. Further revisions of the *Koseki* law, enacted in 1948, changed the unit of registration of the system from "a family," in the sense of a large family, to "a couple" consisting of a husband, his wife and their unmarried children. The *Koseki* system has been a governmental responsibility ever since it was established. In matters of vital statistics in Japan, the first series of births and deaths was published in 1872. In 1873, the report forms were revised to include marriages and divorces. In 1876, the Public Health Bureau started the series of causes of death. The Second World War caused the disruption of the vital statistics series. The air raids between 1944 and 1946 destroyed the records in many areas of the country. After the war, in 1946, the function of vital statistics was assumed by the Bureau of Statistics, Imperial Cabinet, and subsequently transferred to the Ministry of Health and Welfare in 1947. The Ministry was made responsible for the compilation and dissemination of vital statistics based on information collected from the family registration system.

In **Korea**, the registration system can be traced back to ancient times, when household records were maintained by some forms of civil registry. In 1910, a civil registration law was enacted but ceased to function after the Second World War, when the political divisions changed.

In **India**, death registration began in the middle of the nineteenth century to collect information mainly for the control of pestilence and disease. Subsequently, registration of births was introduced gradually in different parts of the country. There was no uniformity for registration throughout the country, and in some regions registration was done on a voluntary basis. It was not until 1951 that the Office of the Registrar General and Census Commissioner was created. In 1960, vital statistics, which until then were the responsibility of the Director General of Health Services, were transferred to the Registrar General. The enactment of the Registration of Births and Deaths Act of 1969 unified the registration system in India and made the reporting and

registering of births and deaths compulsory. It also provided for a statutory authority at the center and in each state and made the Health Services responsible for the registration of births and deaths. As the states are autonomous, the central Government works in cooperation with the state registration officials to promote standards in registration procedures and practices.

In **Indonesia**, the population was subject to village registration for tax purposes during British colonial rule between 1809 and 1816. After the departure of the British, the Dutch continued the village registration process with some alterations. The first colonial regulation on civil registration was promulgated in 1849 and related to the registration of births, deaths and marriages of a small group of the population, the Europeans. The Civil Medical Service was made responsible for this system. The coverage was expanded significantly in 1919 with the inclusion of the Chinese population. In 1924 the role of the health authorities was reaffirmed in the collection of vital statistics under the administration of the Public Health Service, whose main purpose was to improve health and sanitation conditions; hence efforts to obtain better counts of births and deaths were made. In 1933 the Law was revised to cover the Christian Indonesian population. A new system was established in a demonstration unit initially for births (1933) and then for deaths (1934) and late fetal deaths (1938). The main features of this new system rested in the provision of new registration forms which vastly expanded the amount of data collected. Unlike the earlier summary reports, this system provided for individual records of each vital event completed in triplicate. The system was rapidly expanded to other areas of the country covering virtually all of central Java and some of the residences in East and West Java until it was disrupted because of the Second World War in the early 1940s. In 1949, the Ministry of Health regained control of the vital statistics function and at the same time the old colonial village registration continued. Therefore, two systems were in operation: one a weekly summary report on gross changes in the village population, the other a civil registration system that relied on individual registration records. Neither system had national coverage nor did they include the same areas of the country. Both covered all Java and Madoera, but outside of these areas the coverage was spotty. The registration of marriages and divorces among the Muslim population in Indonesia has been the responsibility of the Department of Religious Affairs since 1946 and owing to the involvement of the authorities in the rites it is believed that the coverage is fairly complete.In accordance with the Presidential decree of 1977, the responsibility for the administration of the civil registration system came under the Department of Internal Affairs with the Justice Department retaining the responsibility for the preparation of legal matters.

In the **Philippines**, civil registration was introduced in 1889 by the Spanish colonists. It was based on the civil code of Spain. At about the same time, a Central Office of Statistics was created. Under the new arrangement, parish priests were required to send to the Central Office of Statistics in Manila a detailed statement of the births, marriages and deaths that had occurred in their respective parishes during the previous year.

Present Civil Registration and Vital Statistics Systems in the World

Some 150 countries or areas in the world have a system of civil registration and vital statistics and respond regularly to the United Nations annual inquiry for demographic statistics. More than half of those countries or areas have "complete" registration of births, deaths and marriages—that is, as estimated by each Government, at least 90 percent of the events that occurred each year were registered and reported to the compiling office. The systems of the remaining countries or areas were less developed and required improvement. There is no information on the completeness of civil registration for 40 countries or areas since they do not respond to the United Nations inquiry.

International Activities in the Promotion of the Systems

Many international organizations and agencies have worked in the past to establish standards, definitions and classifications for civil registration and vital statistics in order to bring about greater uniformity of data so as to promote international comparison of vital statistics. In more recent years, international activities have also been directed towards the improvement of national vital statistics systems through technical assistance, project development, training, regional meetings and seminars. A list of these international organizations and a brief summary of their activities are given below.

International Statistical Institute (ISI). Early recognition of the need for internationally comparable vital statistics found expression in the desire for a uniform classification of causes of death. This recognition, which predated the first international compendium of vital statistics by some 60 years, came about at the first International Statistical Congress in Brussels in 1853, at which Dr. William Farr, Compiler of Abstracts in the General Register Office of England and Wales, was requested to prepare "a uniform list of causes of death applicable to all countries." Revision of the resulting classifications in 1864, 1874, 1880 and 1886 provided the basis for the "International List of Causes of Death," the preparation of which became the responsibility of ISI in 1891. Subsequently, in 1928, a "Mixed Commission," representing ISI and the Health Organization of the League of Nations took over responsibility for the list and in 1946 its development became a function of the World Health Organization. In addition to its work on the International List of Causes of Death, ISI devoted part of each of its sessions to a consideration of demography in general. Recommendations on various procedures relating to population and vital statistics were adopted over the years. These recommendations dealt with almost every facet of the compilation of vital statistics, including basic tabulations and standards for tabular presentation.

League of Nations. The Health Organization of the League of Nations began work to minimize the problem of variations in the registration and compilation of vital statistics by studying in detail and at first hand the individual systems and procedures in selected countries. A comprehensive report on each country, including a section on vital statistics and sections on census and morbidity statistics, was published between 1924 and 1930. These surveys still constitute the only intensive studies of this type available for ready reference relating to earlier periods. Another contribution of the League of Nations to improving vital statistics was the proposal in 1925 of international definitions of live birth and stillbirth. Supplementing this important step towards standardization was the work done in conjunction with ISI on revising the "International List of Causes of Death" and in developing a standard medical certificate with rules governing the choice of the cause of death to be tabulated when more than one was given.

United Nations. With the advent of the United Nations in 1945, the development of international comparability of all kinds of statistics became the responsibility of its Economic and Social Council and two of its technical commissions, the Statistical Commission and the Population Commission. With regard to demographic statistics, the Council adopted two resolutions, in 1946 and 1947, which were aimed at improving the comparability of basic population statistics. In 1949, the Statistical Commission was specifically concerned with the development and improvement of national vital statistics and their comparability. As a first step, the United Nations conducted a study of the prevailing civil registration and vital statistics systems that included concepts, definitions, data classifications and tabulations and the evolution of the systems. At that time, the Statistical Commission agreed that comparability could be achieved only through the adoption and implementation by all countries of the same general concepts,

definitions and classifications. The survey, to which 58 countries responded, led to the preparation of international recommendations for the improvement and standardization of vital statistics, published in 1953.

A second in-depth study was initiated in the early 1950s on the recommendation of the Statistical Commission. Countries were requested to describe their process of registration of live births, deaths, stillbirths (late fetal deaths), marriages and divorces, as well as the process of statistical compilation. The findings of this study, to which more than 100 countries responded, were used for the preparation of the *Handbook of Vital Statistics Methods* published in 1955. The *Handbook* comprises a worldwide cross section of practices, procedures and methods of civil registration and vital statistics systems and has greatly assisted countries or areas in the development and implementation of their own systems. Special attention was given to recording and compiling vital statistics of live births, deaths, stillbirths, marriages and divorces. One of the most recent United Nations activities in these fields includes the updating of the *Handbook*. Results of this updating are contained in the 1991 version.

In an effort to strengthen its work in the field of preparation of standards and recommendations, *Principles and Recommendations for a Vital Statistics System* was published in 1973, a revision of the 1953 version. The publication provides detailed and comprehensive information on the organization of civil registration and vital statistics systems as well as alternative methods for vital statistics collection. In addition, an important and comprehensive work carried out regularly by the Statistical Office of the United Nations Secretariat in the field of compilation and dissemination of vital statistics worldwide is the *Demographic Yearbook*, published since 1948. International vital statistics are also disseminated in the *Population and Vital Statistics Report*, a quarterly publication of the Statistical Office and in its annual *Statistical Yearbook*.

World Health Organization (WHO). Under its constitution, the World Health Organization, which replaced the Health Organization of the League of Nations, is required to establish and revise, as necessary, international classification of diseases and of public health practices. Since the adoption of the Sixth Revision of the International Classification of Diseases and Causes of Death in 1948 (ICD-6), this classification has undergone three revisions. The latest edition of the International Classification of Diseases is the Ninth Revision (ICD-9) adopted in 1975. Work is in progress to finalize the Tenth Revision (ICD-10) which is expected to be adopted by WHO in 1990.[2]

In 1948, WHO also adopted a set of regulations known as World Health Organization Regulations No. 1 regarding nomenclature to ensure as far as possible the uniformity and comparability of statistics of diseases and causes of death. These Regulations, *inter alia*, cover instructions for the compilation and publication of mortality statistics by geographic area, age and causes of death; and the format of the international medical certificate of cause of death and instructions for the selection of the main cause of death for tabulation. Countries are obligated to adopt a medical certificate of cause of death which conforms as far as possible to the International Form of Medical Certificate of Cause of Death. Countries are also required to classify causes of death according to the international rules for selection of causes of death for primary tabulations. Again in 1948, a recommendation was endorsed to establish national committees on vital and health statistics to facilitate the exchange of information and views among the various national agencies responsible for the collection and analyses of vital and health statistics. WHO has continued to promote the operation of national committees and has issued, from time to time,

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[2]Editor's note: ICD-10 was in fact adopted by the World Health Assembly in 1990.

reports on the activities of national committees in various countries. In the field of vital statistics dissemination, WHO publishes annual mortality data with special reference to cause of death. In addition, articles on special subjects are published in *World Health Statistics Quarterly*.

Regional Activities

A number of other international organizations conduct regional activities in vital statistics, such as seminars and workshops, and issue related publications. Among them are the **Pan American Health Organization**, the **U.N. Economic and Social Commission for Asia and the Pacific**, the **U.N. Economic Commission for Africa**, the **U.N. Economic Commission for Latin America**, the **Organisation commune africaine et mauricienne**, and the **Union douanière et économique de l'Afrique centrale**.

National and Nongovernmental Activities

The **Inter-American Statistical Institute**, founded in May 1940 as a specialized agency of the Organization of American States, promotes the standardization of methods and definitions as well as high standards in population statistics among the countries of the region. Its work is guided by the Inter-American Statistical Commission, renamed the Inter-American Statistical Conference, which comprises the directors of national statistical organizations of the region and remains fully active.

The **Vital Statistics Improvement** project, supported by the U.S. National Center for Health Statistics, has also focused on improving vital and health statistics in various countries and regions.

The **International Institute for Vital Registration and Statistics**, a nongovernmental organization, was established in 1974 for promoting the improvement of civil registration and of the compilation of vital statistics. Its purpose is to provide an international professional forum for the exchange of administrative and technical information as well as of experience gained by countries in civil registration and vital statistics activities.

The **Inter-American Children's Institute** established a project in 1979 for the improvement of civil registration and vital statistics services in Latin American countries.

USES OF REGISTRATION RECORDS AND VITAL STATISTICS[1]

United Nations Statistical Office

Records of civil registration have important uses for both individuals and societies. For individuals, copies of registration records can be used as legal documents for evidentiary purposes. Registration records, when compiled to become vital statistics, are needed not only for administrative applications such as serving to design and implement public health programs but also for carrying out social and demographic research. This article reviews some of the known demands for individual records for use by individuals and by society for legal and other purposes. It discusses the uses of continuous vital statistics for demographic studies, for medical research, and for public health programs and other purposes. The discussion may serve as a suggested list for administrators who are seeking the fullest utilization of vital records and statistics and will also be of help to civil registrars, statisticians and training personnel directly concerned with these activities in developing countries.

Uses of Vital Records

Registration records of vital events are intended primarily as legal documents of direct interest to the person concerned. From the official records, evidentiary proof of the occurrence of a vital event and its characteristics can be made by a civil registrar or any other designated authority. Each certificate constitutes testimony of the particulars set forth therein in all courts of law and in public offices. There is a wide variety of circumstances, legal and administrative, for which a certified copy of the legal record of live birth, fetal death, death, marriage and divorce is usually required.[2] Fetal deaths, however, are mostly recorded for statistical purposes rather than for legal purposes. Individual records also serve as the starting point of a number of operational programs. The following discussion illustrates the usefulness of records and statistics.

Uses to individuals

The records of birth, death, marriage and divorce are designed mainly for the protection of the individual's rights as a member of society. The most common uses the individual makes of these vital records are presented below.

Live birth

- *Provides evidence of the fact of a person's birth and the facts related to birth to*: establish family relationship (parentage), ancestry, lineage, dependency, some elements of the person's identification; register marriages, divorces, adoptions, legitimations, naturalizations, change of name(s), additions or alterations to vital records; establish rights to inheritance, property, birth grants, maternity grants, child care, family allowances (for every child up to a certain age),

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[1] This article was abstracted from Chapter II of the United Nations *Handbook of Vital Statistics Systems and Methods*, Volume I, *Legal, organizational and technical aspects*, Studies in Methods, Series F, No. 35, 1991. That document contains source references not included in this abstract.

[2] Although not specifically discussed here, certified copies of the records of other registrable events such as adoptions, legitimations, recognitions and so forth may be used in much the same way.

maternity leave after confinement, protection against job dismissal during maternity leave, milk and food rations, bonuses to families based on a scale increasing with the number of children, allowance for disabled child.

- *Provides proof of the person's age or date of birth to establish rights contingent upon attainment of a certain age to*: enter school; obtain permission to work in certain industries, professions, and in government service; enter in the armed forces or the right to be excused from them; apply for identity cards; own property; apply for a license to operate a motor vehicle or carry firearms; establish inheritance rights; exercise voting rights and citizenship; apply for a marriage license; apply for education allowance; qualify for social security pensions or early retirement.

- *Provides proof of the person's place of birth and place of registration to*: establish nationality, citizenship; provide basis for immigration and naturalization claims; apply for internal or external migration permits; apply for passports for foreign travel; obtain exemption for alien restrictions or, if an alien, to obtain exemption from taxes or military service in the country of residence; apply for repatriation.

Death

- *Provides evidence of death to be used by his/her heir to*: apply for burial or cremation permit; claim inheritance rights on the part of beneficiaries; make insurance claims; make claims for family allowances; establish the right to a second or subsequent marriage for the surviving partner; make notification to the correspondent authorities in case of doubtful or criminal cause of death.

Marriage

- *Provides proof of the fact of occurrence of a marriage to*: establish the inviolability of the marriage as a social institution; confer legitimacy for family formation; prove ancestry and lineage; ensure legal responsibility for family support; establish rights to inheritance; apply for family allowances; make insurance claims if one of the partners dies; apply for marriage grant; settle tutorial rights on his/her children when the marriage breaks up; establish such facts in order to obtain passports for foreign travel; register adoptions, divorces, separations, annulments of marriage; prove legitimacy of children.

- *Provides evidence within the support program for family formation, wherever applicable, to*: apply for provision and allocation of government housing for married couples; apply for housing governmental subsidies; apply for guaranteed minimum monthly family income varying with the number of children; apply for low interest loans for purchasing and furnishing a home; apply for income tax reduction; apply for interest-free loans; apply for bonuses to families.

- *Provides evidence of the date and place of marriage to*: apply for low-interest loans for newlywed couples; apply for interest-free loans for young couples under a certain age within the support program for family formation; apply for family allowances for young couples; establish the legality of the marriage itself; establish the legitimacy of their own children and register legitimacy of a child by subsequent marriage; apply for change of nationality.

Divorce

- *Provides proof of the fact of divorce to*: establish the rights to alimony or family pensions; establish the right to remarry; obtain release from financial obligation incurred by the other party.

- *Provides evidence of the date of divorce and the place where it was granted to*: establish paternity; establish the legality of a subsequent marriage; establish rights contingent upon marital status and age, and prove absence of responsibility of a financial nature; establish the legality of divorce in other jurisdictions; support a request for delayed registration of a birth; apply for income tax reductions; apply for guaranteed minimum monthly family income (varying with the number of children) within the support program for family formation.

Uses to society

Birth, death and marriage registration records are useful in public policy and programs which require reliable information. Social programs can be designed, monitored and evaluated with the aid of reliable vital records and statistics. Vital records can also be used extensively in medical research and in epidemiological, genetic, demographic and social studies. The common uses of specific vital records are presented below.

Uses of birth records

- *Use in public health programs in postnatal care of mother and child*: The starting point of the program is the birth register and the listing of births of mothers living in a particular community. These lists, including certain particulars about the birth, serve as a basis for visits by public health nurses to instruct the mother in the care of the newborn and on postnatal management, including nutrition of both the child and the mother. This is of particular importance for the first-born child, low-weight babies, and where there were any complications during the birth process or congenital malformations.

- *Use in other public health programs to identify population at risk*: Children are identified for vaccination and immunization against the common child diseases; children born with congenital defects (cleft lip or palate, club foot) are identified so that medical assistance can be arranged for them to alleviate or cure those malformations; physically handicapped newborn children may be followed up to provide them with medical services and educational programs; premature infants not attended by physicians can receive special care if weight is provided in the vital record; multiparous women can be eligible for family planning programs and those primiparous can contribute to studies on high mortality risks.

- *Use for social services and programs*: Governmental offices concerned with the protection and well being of children can use alphabetical listings of birth records for family allowance administration and for implementing and monitoring other social services and programs.

- *Use for research.* Genetic studies using family reproductive histories which can be derived from vital records: A birth registration record contains a number of details about both the father and the mother to enable it to be identified unambiguously with the marriage record of the parents if legally married. Similarly, a death record can be identified with the corresponding

birth record and with the parents' marriage. A marriage record can, in turn, be identified with the births of the husband and wife, and also with the marriage of both sets of parents. Research in this field has also been done by cross-linking birth records to marriage registrations and health records to detect differential fertility (mortality) in families carrying hereditary defects.

Comprehensive studies of infant and child mortality and their socioeconomic and biological correlates: Such studies can be done by linking the birth records with the corresponding infant and child death records. There is also potential for valuable research studies by matching vital records with other independent sources of data as part of a test of birth registration completeness. Similarly, neonatal death records may be matched with the corresponding birth records as part of a test of birth registration completeness.[3]

Follow-up survey using selected birth records as the basis: The base registration birth records can be supplemented with data from special surveys undertaken on a sample of those birth records.

Uses of fetal death records

- For research purposes, retrospective surveys may be conducted to find out the social and economic background of the parents of the fetus, the physical and mental health of the mothers, conditions of the fetus such as birth weight and length in order to ascertain the causes of fetal deaths, including both early and late fetal death. Fetal death records are also used in studies of registration of the outcome of pregnancy when combined with health and birth records.

Uses of death records

- *Use in public health programs to control infectious diseases*: Measures to find cases of tuberculosis, AIDS, and so forth within a family may be undertaken upon the registration of the death of a member from that disease. In areas where major epidemic diseases such as smallpox, yellow fever, malaria or plague have been eradicated, the appearance of a death from one of these causes will set in motion a chain of actions designed to confirm the diagnosis and to uncover all possible contacts which the deceased may have had for immunization or treatment during the period of illness.

- *Use in health research*: Death records have been used in some countries in the prevention of maternal deaths. After special investigations of maternal death records have been carried out in selected areas to learn the causes of deaths, programs of prevention may then be

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[3]When data are matched between sources, the confidential nature of the information usually protected under the civil registration and statistical laws is broken. In the past, some countries have faced serious obstacles to using the information in vital records combined with data in population census documents and health records, as the latter are of strict confidential nature. However, concepts of confidentiality that do not preclude the transmission of information on individuals to responsible researchers have been accepted by the scientific community and the general public in many countries. Special provisions may be made within the corresponding laws to permit the use of vital records in scientific research.

introduced. A similar approach has been taken with respect to infant deaths to determine the preventable factors of infant deaths.

- *Use in epidemiological research*: Epidemiological approaches to studying the association between low birth weight children and infant mortality can be done by linking all live births weighing less than a specified lower limit to the corresponding infant death records. Similar approaches can be taken to study neonatal mortality or post-neonatal mortality differentials. Other types of epidemiological research include the use of the records of two control groups to learn the effects of certain causes of death, either retrospectively or prospectively.

- *Use in the study of mortality differentials*: Mortality rates by age, sex, occupation, education, income, type of family, and urban/rural residence characteristics could be better studied by matching death records for persons who died after the date of the census to their census enumeration schedule. Information about the deceased reported on the death record is supplemented by any additional demographic and socioeconomic information required about the deceased and other persons reported in his or her household in the census schedule.

- *Use in historical demography research*: Scholars have made efforts to assess long-term past trends in infant mortality by cross-linking death, birth and marriage records at the micro community level. Reconstitution of the past series of deaths from the registers of burial permits kept in parishes may be used for this purpose.

- *Use in administrative work*: The death registration record also finds a use in clearing social security files, morbidity case registers, electoral lists, military service and tax registers.

Uses of marriage and divorce records

- *Use in social and demographic studies*: Longitudinal studies of married couples and family patterns can be based on a sample of marriage records to assess the dynamics of the social and demographic process at the micro level. Studies in family history focusing on local demographic patterns and family size variations over time can also be undertaken by reconstituting families based on marriage records and matching them with the corresponding birth and death records of their children and with their own death records. Divorce records may be the starting point in studies of trends in remarriage patterns or in studies to assess differentials in the probability of divorce by type of interfaith marriage or other relevant characteristics. The latter is made possible when complemented with sample survey data.

- *Use in genealogical research*: Records of birth, adoption, legitimation, death, marriage and divorce can be used for tracing the lineage of individuals interested in constructing the family tree.

- *Use in administrative work*: Marriage listings can help in the administration of family allowance programs or family food rations distribution programs.

Uses of Vital Statistics

The obtaining of detailed vital statistics has now become a major function of the civil registration system. The vital events and the related characteristics of events provided at the time of registration also lend themselves readily for compilation of continuous series of vital statistics. In addition, vital statistics derived from the civil registration system (and the population registration system) can provide the flow statistics from the smallest civil divisions, a characteristic that no other data collection system can provide.

Uses in population estimates and projections

Data on births and deaths obtained through the civil registration system can be used with population census data to prepare population estimates and projections for different areas of a country. Depending on how detailed the vital statistics are, population by various subgroups such as age, sex and other characteristics may also be estimated.

Analyses of trends of fertility, mortality, nuptiality and divorce obtained from vital statistics provide inputs for the formulation of population projections assumptions. Live birth order, a characteristic that is usually collected in the vital record (or in its statistical report) for each registered live birth, can be cross-tabulated with the age of the mother to allow a more refined analysis of fertility patterns and changes to be made and to prepare special fertility projections.

Uses in cohort and period studies

Vital statistics form the basis of cohort analysis. Statistics derived from the civil registration system can be used to study various characteristics of the population from either the period or the cohort point of view. Estimations derived from registration data are direct estimates which do not depend, or depend very little, on assumptions. In particular, the infant mortality rate can be estimated directly using registration data.

Uses in constructing life tables

An important tool in mortality analysis is a life table that summarizes the mortality experience of a population independent of its age composition. It has a variety of uses in demography, public health and actuarial work. Both the standard life table, which deals only with the mortality experience of a population, and the multiple decrement table, which describes the separate and combined effects of other factors in addition to mortality, can be calculated. The first calculation, of deaths by age and sex produced by the civil registration system, is straightforward. The second requires death statistics by age and sex and specific rates by other social variables such as the labor force participation rate. For example, the attrition of the married population can be studied through divorce and mortality. The construction of life tables for smaller geographic areas must depend on vital statistics derived from the civil registration system as it is always difficult to use sample data to represent small areas.

Uses in preparing health indicators

Vital statistics are the basic data for the calculation of various indices of mortality. They also serve as an aid to public health programs and research. For the purpose of international comparison, the World Health Organization has recommended that the infant mortality rate, the

life expectancy at birth, the crude death rate and the proportionate mortality rate at ages 50 years and over be used to measure the levels of health. In addition to the infant mortality rate, the post-neonatal mortality rate has also been used as an index of public health to measure the effect of environmental influences on health. Data on post-neonatal and neonatal mortality can be obtained only from registration data. For an understanding of specific health problems, mortality statistics by cause of death are essential. They can be obtained mainly from registration data.

Uses in epidemiological studies

Death records can be used as the starting point of retrospective epidemiological studies; their use as the end point in prospective epidemiological studies has already been mentioned. These studies make possible the testing of hypotheses regarding disease causation. Another kind of epidemiological study is descriptive in nature, and the differentials observed from mortality statistics by cause of death lead to hypotheses about the causative factors. Descriptive studies have played a useful role in showing the association between possible etiological factors and diseases.

Uses in public health programs

In the absence of morbidity data, public health programs rely on mortality statistics to learn the magnitude and distribution of major disease problems. Although certain infective and parasitic diseases may be reported, morbidity reports on communicable diseases are generally incomplete and indicate only the seasonality of diseases. Mortality records collected on a regular basis can serve as a useful source of data in dealing with problems of public health.

Uses in maternal and child health services

Maternal care and child health programs can be carried out effectively by the availability of statistics on births as well as fetal, maternal and infant deaths. These data, classified by place of occurrence (hospital, home and urban/rural places), birth weight, gestation age, parity, age of mother and the like, will provide useful information for planning, operating and evaluating services to prevent maternal and infant deaths. Pregnancy wastage involving fetal and neonatal deaths is assuming great importance, particularly in low-fertility societies. The matching of birth to infant death records provides additional characteristics of the mother, such as age, marital status and socioeconomic status, for intensive studies of pregnancy outcome.

Uses in family planning services

Family planning services require fertility data by age of mother and parity for the planning, implementation, monitoring and evaluation of family planning programs. Marriage rates and age at first marriage are also useful data for an understanding of the dynamics of fertility.

Other uses of vital statistics

Information on trends in birth, death and marriage rates and data on family size and composition are important in planning for housing and school facilities and in the training of teachers. Current vital statistics and projections are useful in planning for future markets of

consumer goods such as medicine, food, clothing and furniture, as well as stocks of clothing, toys and play equipment for growing children.

POTENTIALS OF RECORDS AND STATISTICS FROM CIVIL REGISTRATION SYSTEMS FOR HEALTH ADMINISTRATION AND RESEARCH[1]

Iwao M. Moriyama

For many years, the only recognized way of producing vital statistics was from birth and death records filed for legal purposes. This was true despite the fact that the statistics derived from these documents in developing countries were generally so incomplete as to be of limited usefulness. Shortly after World War II, a demand arose in developing countries for birth and death statistics for planning, administration and evaluation of health programs; for measurement of population growth for family planning programs; and for national social and economic development planning purposes. Because the then current civil registration systems were incapable of providing the needed statistics, other ways and means were sought to estimate birth, death and population growth data. This led to the application of retrospective survey methodology and the development of indirect methods of estimating fertility and mortality rates. The availability of such methods for estimating birth and death statistics naturally raises questions about the value of civil registration data for statistical purposes. The purpose of this paper is to discuss the advantages and disadvantages of the current continuous death registration system as a source of data for differential mortality analysis and other uses of mortality data.

Some Aspects of the Death Registration Process[2]

The legal base for death registration is some kind of civil law on registration which establishes the compulsory nature of and the requirements for registration of deaths. The law designates the person responsible for and the place of registration and prescribes the time allowed for the registration of the event, the fees required, if any, and the penalty for failure to register.

In most countries, the responsibility for the registration of a death rests with a relative or the head of the family or household. Data concerning the decedent are obtained from the informant prior to or at the time of registration. These data usually include the time and place of death, the personal particulars about the decedent, and characteristics of the parents, attendant at death, informant, witnesses and the registrar, and the method of interment. Another important datum is provided by the medical attendant, if any, or by the medico-legal authority, on the cause of death. The legal record, in the form of books of actas, is usually brief. For statistical purposes, additional information is collected from the informant at the time of registration. The legal record is placed in a permanent repository while the statistical transcript is transmitted to the government agency responsible for vital statistics.

In some countries, the legal and the statistical forms are combined into a single death certificate. The original death certificates are bound into books and filed permanently for legal purposes. Provisions safeguarding the confidentiality of information in these documents vary by country. However, certified copies of the record are generally issued to individuals upon request.

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[1]This article was abstracted from IIVRS Technical Paper No. 19, September 1982.

[2]For a historical background, see the United Nations article, "Historical Development of Civil Registration and Vital Statistics Systems," summarized elsewhere in this volume. For a full description of the civil registration procedure, see *Handbook of Vital Statistics Methods*, Studies in Methods, Series F, No. 7, United Nations, 1955.

Uses of Death Statistics

Official mortality statistics derived from death records are used extensively for demographic studies and in public health programs. These studies may deal with mortality differentials by age, sex, occupation, socioeconomic characteristics, etc., or they may deal with the demographic characteristics of the decedent to eliminate the effects of age, sex, and ethnicity for studies of mortality risk factors. For public health purposes, the statistics on causes of death figure prominently. Death statistics have long been used as indicators of health, as measures of the magnitude of health problems, and for the evaluation of health programs, despite certain limitations of mortality data for this purpose. The availability of mortality statistics on a routine basis for the various political subdivisions of a country is of central importance to the utilization of death statistics for these manifold purposes.

An important use of mortality statistics is in the study of determinants of disease. For example, Pool and Chan (2) observed the differential decline in the tuberculosis mortality rate for the Maoris and attributed the decline to the disadvantageous position of the Maoris in New Zealand society until the 1940s. Elsewhere, nationwide malaria control programs were carried out in a number of countries after World War II, and significant reductions in the general mortality rate occurred. Pampana (3) presented data for six countries where such programs had been in operation for at least 5 years and for which adequate data were available. The decline in mortality was found to be most striking in Ceylon, but there was no general agreement as to the cause of the reduction. Meegama (4) attributed part of the decrease to malaria control and the rest to the establishment and provision of health and medical services. Fredriksen (5) found similar mortality reductions in nonmalarious areas not protected by pesticides and concluded that the decline in mortality was associated with economic development and the consequent rise in the level of living. Newman (6), on the other hand, took the position that it was not possible to disentangle the effects of the various factors that were operating at that period.

There are many other examples of epidemiologic studies based on official mortality statistics. Hoover and Fraumeni (7) studied cancer mortality in counties where certain industries were located and found excessively high death rates for bladder, lung, liver and certain other cancer sites in 139 counties where the chemical industry was centered. Blot and Fraumeni (8) compared data on lung cancer mortality for counties in the United States where paper, chemical, petroleum and transportation industries were located with data for adjacent counties where there were no such industries.

In the studies cited thus far, observed changes and differentials resulted in inferences leading to hypotheses about disease causation. Other studies start with a hypothesis about a disease and accumulate data to test it. For example, Fears (9), in an effort to ascertain whether naturally occurring asbestos resulted in increased risk of cancer mortality, identified the various counties in the United States with asbestos deposits, matched them with two nearby counties that did not have known asbestos deposits, and compared cancer mortality rates for the two sets of counties. He found no evidence that naturally occurring asbestos is a hazard to the general population.

All of the studies cited have one characteristic in common, namely, that the investigations are based on traditional or official mortality impinging on the general population as well as the special risk factors. Therefore, it is not possible to determine the effect of any particular factor. However, descriptive epidemiology is valuable in suggesting hypotheses or leads for further investigation.

For the testing of epidemiologic hypotheses, it is necessary to include measures of specific risk factors in the study. This is the basis of the case control or the retrospective epidemiologic study and the prospective epidemiologic study which will be discussed later in connection with the uses of death records.

Uses of Death Records

The death record provides a proof of death for burial or other means of disposition of the remains, for the settlement of life insurance and social insurance claims, and for the adjudication of property ownership and inheritance claims. It also provides legal evidence for the right of a surviving spouse to remarry. The death record has also been used for clearing various kinds of files such as social security records, disease case registers, electoral lists, bank accounts, missing persons files, etc.

The death certificate or death reports have been used extensively in public health and medical studies. The death record has been useful for program purposes in public health, for linkages to other records, for follow-back investigations, and for retrospective and prospective epidemiologic studies. Following is a brief description of each of these uses.

Public health program uses

A common use of vital records in public health is the referral of certain problems to specific program units for follow-up or investigative purposes. For example, in many local health departments, death records involving individuals who died from certain infective diseases are routinely referred to the communicable disease unit. This makes possible the spotting of epidemics or, in the case of virulent epidemic diseases, an investigation to examine contacts in attempts to contain the spread of the disease.

Other program uses may be mentioned. Birth records of immaturely born children may be referred to the maternal and child program for follow-up purposes to advise on the proper neonatal care for the baby. In the event that the child was born with a malformation, the crippled children's program may provide assistance or make the parents aware of the available services. None of these community and personal services can be provided without the identity of individuals involved.

For many service programs, it is important to update the registers by removing on a current basis those that dropped out of the program through death. This can be done by matching the death records with the registry file. Vital records serve various administrative and scientific purposes, such as the surveillance of certain disease problems. In establishing a registry for incidence or prevalence studies, the death record plays an important role. For example, the cancer registry attempts to record every known case of cancer. Deaths from cancer, if reported to cancer registries, will serve to supplement the known cases. In the poorer registries, more than half of the registry cases are those that were identified by the death certificate. Even in the better cancer registries, more than 10 percent of the total cancer cases come to the attention of the registry from the death record. Other surveillance systems also benefit from a routine flow of information from the vital records. Cates et al. (10) found that surveillance techniques identified more deaths as abortion-related than the death records did. When death records were combined with surveillance records, there was a significant improvement in the identification of abortion-related deaths.

An important use of cancer registries is to make a systematic follow-up of cancer patients in order to schedule periodic examinations. For this purpose, it is essential that the registry clear all cancer patients who die by matching death records to the register cases. This also makes possible the determination of survival rates for the various groups of cases. The survival rate is one means of assessing the effectiveness of different kinds of cancer therapy.

Record linkage

The value of mortality statistics *per se*, that is, official mortality statistics, is limited for epidemiologic and evaluation purposes. This is because mortality data are not generally classified according to the factors that need to be studied. One needs to go beyond the usually available demographic characteristics such as age, sex, ethnicity, etc. To break out of the limiting bounds of mortality statistics, one could link the death record with other pertinent information. An example of this may be found in the study of infant deaths. Conventional infant mortality statistics include rates by age, sex, and cause of death. Although immaturity is tabulated as a cause of death, there is no way to obtain death rates for low birth weight infants using the death record alone. However, birth certificates in many countries contain information on birth weight. Therefore, if the infant death record were to be matched to the birth record, it would be possible to utilize the birth weight data recorded on the birth certificates for the numerator as well as the denominator of the rate. Similarly, it would be possible to obtain infant death rates by age of mother, parity, and other information concerning the mother or child which may not be recorded on the death certificate.[3]

Follow-back studies

To go beyond the limitations of traditional mortality statistics, it has been suggested that supplemental data be collected by going back to the informants named on the death record. By obtaining the same information for a sample of the living population, it would be possible to present death rates on items not covered in the death record. Also, by going back to the medical attendant at death, it should be possible to obtain additional diagnostic information and make an evaluation of the quality of diagnostic data.

Epidemiologic studies

One of the significant developments in the postwar period was the burgeoning of public health interest in environmental problems which gave rise to many studies in chronic disease epidemiology. In these efforts, mortality statistics proved to be an inadequate source of data. It remained for the death record to serve this new need by providing a starting point in retrospective studies and an end point in prospective epidemiologic studies.

In the retrospective, or the case control, study approach, the death record is employed to identify the cases for retrospective epidemiologic study, one group of cases being related to the disease under study and the other to a matched control or comparison group. A follow-back is then made to a data source for information on the etiologic factor, and a comparison is made between these two groups to establish whether the factor is associated with one group and not with the other.

Stewart et al. (13), MacMahon (14) and others have made studies of childhood cancer utilizing the death certificate as the starting point. In the former study, more mothers of children who died of leukemia and other malignant diseases remembered having an abdominal or pelvic X-ray during the related pregnancy than did the mothers of a sample of children who did not die of cancer. In MacMahon's research, children born in a study population who subsequently died of cancer were identified in a review of death and birth certificates. Records of pregnancy and

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[3]Other studies based on linked records are available. For example, see Newcombe et al. (11) and Acheson et al. (12).

delivery of these children were also reviewed. It was found that cancer mortality was much higher in the X-rayed than in the unirradiated children in the study population.[4]

The prospective study starts with a hypothesis about a disease, and data are collected for two defined populations, the "experimental" group and the comparative or "control" group. These two population cohorts are then followed until an event (i.e., death in the case of mortality studies) occurs. The use of matched controls, that is, two populations similar in all respects except for the factor being tested, provides a stronger basis for showing association between variables than the mentioned retrospective approach.

In a prospective study of mortality from lung cancer among asbestos workers, Doll (16) and Knox et al. (17) found lung cancer to be a specific environmental hazard of certain asbestos workers. The average risk among men employed for 20 years or more was in the order of 10 times that of the general population. The risk lessened as duration of employment under old dusty conditions decreased.

Among the more significant epidemiological findings of recent years are those demonstrating the association between smoking and lung cancer. For example, Doll and Hill (18) followed the smoking habits and mortality of 40,000 men and women in the United Kingdom for a period of time, and Dorn (19) analyzed smoking habits and mortality of 200,000 U.S. war veterans. Both studies found a significant association between smoking and lung cancer.

Shortly after the end of World War II, the Atomic Bomb Casualty Commission was established to study the delayed effects of ionizing radiation from the A-bombs. A life span study reported by Beebe et al. (20) followed about 110,000 A-bomb survivors and controls who were alive on October 1, 1950. Dose estimation was made for each survivor from information regarding their physical location and the shielding configuration at the time of the bomb. Deaths occurring to the members of this cohort were ascertained periodically from checks of the family register, and copies of death certificates secured. The unique Japanese system of family registration made possible the ascertainment of virtually all deaths in the sample regardless of the place of death in Japan.[5]

Advantages of a Continuous Registration System

A major advantage of a continuous registration system is that, once the system has been established on an adequate basis, there will be a continuous flow of death records from the local registration units to a permanent repository to serve legal purposes. This makes possible the transcription and/or transmission of copies of death records to a central agency for data processing and statistical compilations.

Registration data deal with the whole universe of events. Therefore, not all of the data may have been tabulated routinely, but much of the needed statistics are usually readily available annually. This is an invaluable feature of registration statistics in providing detailed all-purpose reference tables for various segments of the population that can be tapped for specific studies. It makes possible the conduct of analytical studies on numerous topics either on a cross-sectional

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[4]More recently, Blot et al. (15) undertook a case control study to identify the factors associated with the unusually high lung cancer death rate among male residents of coastal Georgia. The findings suggested that asbestos and possibly other exposures during wartime employment accounted for part of the excess mortality from lung cancer in the southeastern coastal areas of the United States.

[5]For another study of mortality associated with A-bomb radiation exposure, see Moriyama (21).

basis or over a period of time. The availability of trend data is an important advantage of a continuous registration system.

The general availability of mortality data by various personal characteristics of the decedent such as age, sex and ethnicity for the country as a whole and for the different geographic divisions down to the smallest political subdivision makes possible their utilization for many purposes, as already illustrated. Shapiro (22) points out that for local health planning purposes the availability of data for the past and present, and likely availability for the foreseeable future, for geographically disaggregated levels down to subdivisions of a city, make up for many of the defects that may be present in mortality statistics. The question posed to the user of mortality data for planning purposes is how to maximize the utility of this resource even though conceptual and technical issues still remain.

The compiled data are, at least for countries with well-established systems, generally comparable from place to place within a country and from one time period to another. Such internal consistency is one of the remarkable characteristics of registration data. Also, because the definitions and classifications used in vital statistics are usually international in nature, there is a considerable amount of comparability among the data for various countries.

The availability of statistics on causes of death and the possibility of obtaining other medical information through the follow-back procedure make registration statistics virtually indispensable for public health and medical programs. Even developing countries may be able to generate useful cause-of-death data through a system of lay reporting. This is not as far fetched as it may seem because in developing countries a large proportion of all deaths occur in the childhood years. The common diseases of childhood may frequently be recognized by the mother. These cases, plus accidental causes, do not require medical training for an adequate description of the cause of death.

It is difficult to ascertain the cost of registration statistics because a large part of the collection cost is borne by the legal registration process. However, it is probably fair to say that the unit cost of registration data is considerably less than that of data obtained from interview surveys.

The continuous flow of data on a permanent basis obviates the necessity of mounting periodic surveys with attendant high costs and possible changes in survey personnel, objectives, procedures and definitions. In addition to statistics, a death registration system provides death records which make possible the identification of deaths of individuals for use in communicable disease control and in other public health programs such as those on maternal and child health. It also makes death records available for retrospective and prospective epidemiologic studies. The General Register Office of England and Wales gives invaluable assistance in notifying epidemiologists of deaths occurring to members of a study cohort. The U.S. National Center for Health Statistics is now establishing a national death index to provide similar services to those engaged in scientific investigations. These services made possible the conduct of epidemiologic studies which would otherwise be impossible to carry out, except at exorbitant cost.

Disadvantages of a Continuous Registration System

The monolithic nature of the registration system dealing with the total population of a country is a definite disadvantage in any effort to make changes or otherwise improve the system. Changes come slowly. The United States, an industrialized country with a literate population, took over 30 years to qualify all the States for the national death registration area.

Another disadvantage of a continuous registration system is the lack of flexibility in making changes in the content of statistical reports. In interview surveys, it is possible to make changes in the questionnaire forms and to include probing questions if needed. In a registration form,

especially if it is part of a legal document, there are definite constraints on the kind of topics that can be included and how detailed the questions are. There may be a little more freedom with the statistical report form independent of the legal registration document, but registration officials are generally conservative about making substantial changes in the content of the statistical report form.

The disadvantages of a continuous registration system are relatively few, but a number of improvements need to be made before civil registration and vital statistics systems are capable of producing useful statistics on a continuous basis. The most serious problem in developing countries is incompleteness of coverage. In most developing countries, access to the local registration offices is difficult in the rural areas. In many countries, special problems are posed by nomadic and indigenous populations. To complicate matters still further, there is little incentive to register vital events even if there is awareness of the need to register deaths. As noted by IIVRS (23), the absence of need for death certificates and the lack of awareness on the part of the public of the necessity to register deaths have been cited by civil registration authorities as the biggest obstacles to registration improvement. Incomplete death registration, particularly outside the major cities, is a major impediment to the use of data for mortality analysis. Another major factor is the quality of the local registration personnel in developing countries. Sometimes they are scarcely literate; almost always they are inadequately compensated and untrained. As a result, the completeness and quality of the collected data are adversely affected. In addition, dealing with an illiterate population presents special problems in eliciting seemingly simple information such as the age of the decedent, and the poor quality of information concerning the characteristics of the decedent represents a further complication in the use of data for mortality studies.

In view of these problems, virtually all developing countries find themselves without adequate death statistics in their period of greatest need for data for social and economic planning, and for health planning and administration of health programs. Some countries are adopting other means of collecting data to fill the gap, but a large majority of countries are still struggling with registration of vital events.

Discussion

The continuous registration system offers data possibilities that cannot be achieved in any other way. Mauldin (24) and Brass (25) observe that single-round and even multi-round surveys have notably not been successful in obtaining adequate counts of deaths. Lunde (26), in his discussion of the limitations of single-round surveys, points out that mortality data for Uganda, Niger, Algeria, and Tanzania were never published because of obvious defects in the information on deaths obtained from single-visit retrospective surveys. Basically, it is extremely difficult to identify retrospectively persons who are no longer present. For example, deaths occurring in single-person households are not identifiable in retrospective surveys. Dissolution of a family or household may also occur on the death of the head of the family or household, or of one of the spouses. In addition, there may be taboos and/or general reluctance about revealing the facts of death, especially to strangers. In all countries, it is difficult to obtain information on deaths of infants who die soon after birth. Social surveys also have other nonsampling problems such as inadequate recall, erroneous dating of events and misreporting of age.

Indirect estimation methods are based on characteristics of the living population obtained in a census or survey. Data such as those relating to surviving children of mothers at various ages or persons at various ages who were orphaned are transformed into mortality estimates of children and adults. The results of indirect estimation techniques are subject to errors from the

already mentioned nonsampling problems arising in census and social survey interviews. The validity of the estimates also depends on the assumptions underlying the analytical development of the methods. In some cases, it is clear that the conditions were not met while in others it is difficult to judge the validity of the assumptions.

For countries with no data at all or inadequate mortality statistics, even the limited mortality measures provided by the combination of surveys and indirect estimation techniques are valuable for certain purposes. Also, estimates of death reporting completeness provided by indirect methods developed by, among others, Preston et al. (27) are useful approximations for assessment purposes. On the other hand, it seems apparent that the limitations of the survey and indirect methods of estimation are such that they cannot ever provide the kind and amount of statistical data which are obtainable from death registration data. The advantages of a continuous registration process as a source of records and statistics are so substantial that other methods cannot be regarded as adequate long-term substitutes for death registration data, though in the short run, such other methods may represent the only feasible source of mortality data for some countries.

If there are no satisfactory alternatives to the continuous registration process, what are the possibilities of developing registration data within a reasonable time frame? This is not an easy question to answer because there have been no outstanding developments in civil registration parallel to those in survey methodology and indirect estimation methods over the past 15 to 20 years. Perhaps this is because changes and improvements cannot be obtained quickly in a continuous registration system. To try to establish and improve a nationwide registration system is simply too large a task for the usual staff and budget. Also, there are problems amenable and not amenable to solution depending on the state of social and economic development of a country. Linder (28) has classified problems of civil registration under the following heads:

- Relatively intractable problems. These can be solved within the framework of long-range social and economic development, but can hardly be solved by short-range actions taken within the civil registration system itself.

- Problems soluble but requiring national or outside technical assistance funds.

- Soluble problems. These can be solved within the national domain with relatively small financial requirements.

Instead of tackling all the problems at once, Linder suggests that certain tasks should be deferred. One approach to improving the data along this line is the adoption of the registration area concept. For example, the death registration area was established in the United States in 1900 starting with 10 States (out of 48) and the District of Columbia. As the States qualified by the adoption of a standard death certificate form and by demonstrating that 90 percent or more of deaths were registered, they were included in the registration area. By 1933, the registration area covered all the population in the country.

For developing countries, a start might be made with the capital city and major efforts devoted to the establishment of a satisfactory death registration system. After the registration system in the capital city is deemed operational, efforts should then be transferred, one by one, to the other major cities, leaving the difficult and sparsely settled rural areas to the last. A problem with this approach is that until coverage has been fairly extensive, the data will be limited to urban experience.

Another possible approach is that suggested by Hauser (29). He proposed that a national sample vital statistics system be established comprising a sample of complete primary registration units or combinations thereof. This makes possible the focusing of energy and funds on a limited number of primary registration units instead of dealing with all the units in the country at once. Data from a representative sample are certainly more desirable than data limited to urban areas, but it would be more complicated administratively to work on a number of noncontiguous primary registration units simultaneously. In addition, Linder (30), in reviewing the experiences of a number of countries undertaking sample registration projects, observed that most of the recent sample registration schemes have departed from the original concept and have established a sample system independent of the existing legal system. This is an unfortunate departure in that it defeats the original purpose of obtaining continuous improvement in the registration system.

As a strategy to improve civil registration in a country, it would seem sensible to concentrate activities on problems most amenable to solution in geographic areas with the greatest population where government services are more likely to be available to the public. However, because of the nature of registration problems, a fully operational system cannot be expected overnight. Patience and persistence are needed.

The development of a death registration system requires a satisfactory legal base and an administrative organization of local offices. It requires the understanding and cooperation of the public, of medical attendants and others in the healing arts, of hospitals and clinics, of undertakers, and of those in charge of burial places and crematoria. An active and innovative program is needed—not a passive waiting for death certificates to be filed. It is a long road to success, but the reward at the end is worthwhile in terms of an invaluable data source to serve the health and demographic needs of the country.

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HUMAN RIGHTS AND REGISTRATION OF VITAL EVENTS[1]

Nora P. Powell

Introduction

Human rights are perhaps the most precious heritage of man. To implement various U.N. covenants[2] to provide for the rights of individuals and to safeguard these rights, it is necessary to establish the identity of individuals and their relationships. Civil registration documents play an essential role in providing evidence of personal identity, age, parental filiation, nationality, marital status, etc.

By international law, the burden of establishing and maintaining a reliable civil registration system for births and marriages falls squarely on States Parties to the Covenant and the Convention in which these two rights are respectively cited. With respect to the registration of deaths, fetal deaths and divorces, there is abundant evidence of the need to provide proof of these events in order to assist in the implementation of other rights and hence an implicit obligation on the States to provide for their registration also.

This study traces international efforts to promote, to protect and to gain realization of human rights. It shows how the various records of civil status serve the individual through his lifetime in enjoying the rights to which he is entitled. The first part documents the obligation of signatory States to provide their population with the means to register births, deaths, fetal deaths, marriage and divorce in an official register, by a competent authority, as guaranteed or implied in Articles of the International Covenants and in various international conventions. The second part sets forth a catalogue of other human rights; identifies the Article, paragraph and subparagraph of the international instrument that guarantees each right; and describes how its implementation may depend on having official proof of birth, death, fetal death, marriage and divorce.

Right to Register Vital Events in an Official Register

Right to birth registration

The right to have one's birth registered is proclaimed in Article 24(2) of the International Covenant on Civil and Political Rights in recognition that birth records are statements of fact, statutorily declared to be legal evidence of the facts recorded, essential to the protection of individual human rights. The official record of live birth, filed within the statutory time period following the birth, usually contains facts certifying to the identity of the child, such as his name, that of the parents and sometimes of the grandparents; the date of birth; the geographic place of birth of the child; the place of usual residence of the mother; the birth order; and a large number of other items dealing with the characteristics of the event, the infant, the mother, the father, the grandparents, the attendant at birth, the informant, the witnesses to the registration,

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[2]The International Covenant on Civil and Political Rights proclaims that "Every child shall be registered immediately after birth and shall have a name..." and the Convention on Consent to Marriage, Minimum Age for Marriage and Registration of Marriages proclaims that "All marriages shall be registered in an appropriate official register by the competent authority." These covenants and related declarations form the basis of the human rights discussed in this study.

and the registrar who officially inscribed the event in the legal register. The resultant record becomes the legal proof of the fact of the child's birth.

Right to death/fetal death registration

Neither the Universal Declaration of Human Rights nor the two International Covenants of Human Rights mentions specifically the right to have a death or a fetal death registered. However, the existence of such rights is implied in Article 12(2)(a) of the International Covenant on Economic, Social and Cultural Rights wherein it is stated that, to achieve the full realization of the right to health, the States Parties to the Covenant must make "provision for the reduction...of infant mortality..." and "for the reduction of the stillbirth rate..." The death register can provide the number of infant deaths which, together with the number of live births, provides a basis for measuring infant mortality. Likewise, a register of fetal deaths (or, as a minimum, a register of late fetal deaths or stillbirths) and a register of live births can provide the data needed for computing the stillbirth rate and thus for monitoring its trend. The right to death registration is also implicit in connection with the implementation of other human rights, such as the right to inherit, the right to social security and others cited in the second part of this report.

The register of death usually includes at least 10 categories of information, namely the cause, date and place of death, and the characteristics of the decedent, the spouse, the parents, the attendant, the certifier of the cause, the informant, the witnesses to the interment and the registrar. In addition to serving as the legal proof of the occurrence of the death, the registration record supplies the information on cause of death required for statistical and research purposes.

Right to marriage registration

Marriage registration became legally binding on States by the coming into force in 1964 of the Convention on Consent to Marriage, Minimum Age for Marriage and Registration of Marriages, Article 3. The most recent proclamation on registration of marriage occurred in the 1967 Declaration on the Elimination of Discrimination against Women where Article 6(3) states, *inter alia*, that "effective action, including legislation, shall be taken...to make the registration of marriages in an official registry compulsory." This Declaration is in the process of being converted into a binding Convention.

The legal marriage record usually includes information on the personal and economic characteristics of the bride and groom, such as age, marital status, occupation and the like; the date of the marriage; date of registration; place of residence of the partners; the number of previous marriages of each; place of marriage; the registrar; and the witnesses. The resulting record serves as the legal proof of the occurrence and characteristics of the marriage.

Right to divorce registration

The right to divorce registration has not been explicitly included in the Bill of Human Rights despite the fact that both Article 16(1) of the Universal Declaration and Article 23(4) of the International Covenant on Civil and Political Rights give it implicit recognition in referring to the entitlement of men and women to equal rights "as to marriage, during marriage and its dissolution." The Covenant further enjoins States Parties to "take appropriate steps to ensure equality of the rights and responsibilities of spouses..." and specifies that "in case of dissolution, provision shall be made for the necessary protection of any children." Such steps may be

construed as including the need to establish an official register of divorces in which, *inter alia*, the disposition of the children is spelled out.

The contents of divorce registers are not as standardized as those of official registers of birth, death and marriage, due primarily to the fact that often they are not "civil" registers but registers of the court where the legal action took place. Nevertheless, divorce registration itself is proof that the marriage was dissolved by legal rather than natural means, and the identity of the divorcees can be attested by the personal characteristics inscribed.

Rights Whose Realization May Depend on Civil Registration of Vital Events

A large number of the human rights set forth in the International Covenants rely for their realization or implementation on the individual seeking to enjoy the right to be able to prove identity; age; nationality; marital status; the age, number and birth order of children; and so forth. Some of these rights require proof of only one characteristic, supplied by one vital record, while others need evidence on more than one characteristic derived from one or more records.

Right of child to a name (filiation)

The entitlement of a child to a name was first set forth in Principle 3 of the Declaration of the Rights of the Child proclaimed by the General Assembly of the United Nations on 20 November 1959 in the following words: "The child shall be entitled from his birth to a name and a nationality." This right became part of international law through Article 24(2) of the International Covenant on Civil and Political Rights which states that "Every child shall be registered immediately after birth, and shall have a name." The joining of the right to birth registration with the right to a name is recognition that the official birth record is the only legal document that can certify to the true, legal name of the child at birth.

Birth register. The "right to a name" is, in truth, the right to an identity, provided by parental filiation. The name inscribed in the register of birth usually consists of a given name and surname or family name. The given name is a matter of choice, but the surname is shared by the members of the same family, and it appears on the certificate of birth as the name of the father and/or mother of the child. In some cases, the names of the grandparents are also given. The family name thus determines the relationship of the child to its father and its mother. In theory, establishment of filiation of a person born in wedlock would ultimately be dependent on proof of the marriage of the parents, but because marriage is considered to be the usual or normal situation in most parts of the world, the birth record is usually accepted as proof of filiation. For a person born out of wedlock, the birth record can be used to establish maternal filiation, but establishment of paternal filiation in such cases would usually require judicial procedures.

Right of child to a nationality

The Universal Declaration of Human Rights states categorically in Article 15(1) that "Everyone has the right to a nationality." However, Article 24(3) of the International Covenant on Civil and Political Rights brings this human right to the level of international law in the following more limited terms: "Every child has the right to acquire a nationality," a formulation that is more in accord with the Declaration of the Rights of the Child, wherein Principle 3 states that "The child shall be entitled from his birth to a name and a nationality."

Birth register. In its simplest form, a nationality is usually acquired at birth by virtue of the child having been born within the legal boundaries of a particular State or, if born abroad, to parents who were citizens of the country of nationality. In either case, proof of the inscription of the birth by a competent authority in the appropriate official register normally can be used as proof of nationality. Certificates of birth as proof of nationality are especially needed in connection with the implementation of the Convention on the Nationality of Married Women, entered into force on 11 August 1958. The Contracting States pointed out in the Preamble of the Convention that "conflicts in law in practice with reference to nationality by women as a result of marriage, of its dissolution or of the change of nationality by the husband during marriage." But the Contracting States also recognized that the Universal Declaration of Human Rights had proclaimed that "everyone has the right to a nationality" and that "no one shall be arbitrarily deprived of his nationality nor denied the right to change his nationality." Hence they agreed, in Article 1 of the Convention "that neither the celebration nor the dissolution of a marriage between one of its nationals and an alien, nor the change of nationality by the husband during the marriage, shall automatically affect the nationality of the wife." The nationality conferred by the birth record of the wife could be of inestimable value in implementing this provision of the Convention to protect the rights of the married woman.

Right of child (juvenile) offenders to special treatment

As might be assumed, many articles of the International Covenant on Civil and Political Rights deal with the right to justice upon lawful arrest or detention on a criminal charge. In discussing the minimum guarantees everyone is entitled to in the determination of criminal charge, Article 14(4) of the Covenant declares that "In the case of juvenile persons, the procedure shall be such as will take account of their age and the desirability of promoting their rehabilitation." Article 10(2)(b) points out that "accused juvenile persons shall be separated from adults..." and when convicted "shall be segregated from adults and be accorded treatment appropriate to their age and legal status." Finally, Article 6(5) points out that "Sentence of death shall not be imposed for crimes committed by persons below eighteen years of age..." The importance of age in connection with juvenile offenders is clear.

Birth register. In this situation, proof of age is of maximum importance and for this purpose, the record of birth, contained in the official register, is essential for safeguarding the rights of the child offender.

Right to parental support and protection (maintenance)

The right to parental support and protection is guaranteed by Article 24(1) of the International Covenant on Civil and Political Rights which states: "Every child shall have, without any discrimination...the right to such measures of protection as are required by his status as a minor, on the part of his family, society and the State." According to the United Nations *Study of Discrimination Against Persons Born Out of Wedlock*, "In general, the obligation of maintenance refers to the duty of a person to furnish to another, for his support, the means of living, including food, clothing, shelter and, in case of a minor, education...Among the duties that human beings have towards their offspring, none is more fundamental than that of maintaining them until they become self-sustaining. This generally means that a child must be supported until he reaches a specified age...Normally, maintenance obligations are legally binding once filiation has been established with full legal effect..."

Birth register. The birth register normally contains information on maternal and paternal filiation as well as the age of the individual under consideration. Therefore, it can usually suffice to guarantee the right of the child to support and protection from his parents who, in turn, are obligated to supply it. The birth certificate can also be used to prove that a child has gained the age of majority, after which parental authority and obligation legally ceases.

Marriage register. The existence of a registered marriage and the fact that the child concerned was born of that marriage are facts legally required to establish filiation of an individual born in wedlock although in the preponderance of cases the official birth certificate suffices. In the case of children born out of wedlock, the birth certificate usually serves to establish only maternal filiation. Support and protection would not normally be forthcoming from the father until legitimation was accomplished by marriage of the parents subsequent to the birth of the child or by other legal means.

Right to protection from child marriage

Child marriages have been prohibited by Article 16(1) of the Universal Declaration of Human Rights and by Article 23(2) of the International Covenant on Civil and Political Rights in the sense that attainment of "full" or "marriageable" age has been made a prerequisite for entering into a valid marriage. Article 2 of the Convention on Consent to Marriage, Minimum Age for Marriage and the Registration of Marriages also makes the attainment of a minimum age a restriction on marriage.

Birth register. As noted in connection with the right to marry, the intended bride and groom must produce proof of having attained marriageable age before a legal marriage can be performed. Certificates of birth are the proof required to certify age.

Marriage register. The record of marriage in the legal register contains, *inter alia*, the age of the participants, which is proof of their having attained the minimum age specified by law. If such age had not been attained, the register must contain information on the dispensation as to age allowed "for serious reasons, in the interest of the intending spouses," as provided in Article 2 of the Convention.

Right to protection from forced marriage

To judge from its prevalence in international instruments, the right to "full and free consent" on the part of the intending spouses before a marriage may be solemnized is an important part of international law dealing with marriage and the family. Such a right was included in Article 16(2) of the Universal Declaration; it is set forth also in Article 23(3) of the International Covenant on Civil and Political Rights, in Article 10(1) of the International Covenant on Economic, Social and Cultural Rights and in Article 1(1) of the Convention on Consent to Marriage, Minimum Age for Marriage and Registration of Marriages. The Covenants do not spell out how this "right to consent" can be ensured, but the Convention states that "such consent [is] to be expressed by [the intended spouses] in person after due publicity and in the presence of the authority competent to solemnize the marriage and of witnesses, as prescribed by law."

Marriage register. Registration of marriage "in an appropriate official register by the competent authority" is itself a human right. Such registration automatically provides the means of proving that the right of "free and full consent" was ensured because items of information in the register of marriage such as the identity of the competent authority and of the witnesses certify to these facts.

Right to food, clothing, and housing

The right to food, clothing and housing is guaranteed by Article 11(1) of the International Covenant on Economic, Social and Cultural Rights, whereby "The States Parties...recognize the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing..." The same rights appeared first in the Universal Declaration, Article 25(1). Both the Universal Declaration and the Covenant stress the entitlement of motherhood and childhood to special care and assistance in relation to the right to adequate food. The State may confer differential advantages to allay family expenses for clothing, such as price rebates to families in low-income groups that have one or more dependent children under a stated age. Programs designed to supply adequate housing to underprivileged groups usually take the form of State subsidies for the rental or purchase of housing units such as rental allowances, grants, loans, exemption from taxation and the like. Entitlement to participate in such programs is usually dependent on a formula in which the number of persons in the household and their relationship to the head play a role; the number of young children often is a decisive factor.

Birth register. The birth register can serve as the most comprehensive case list for the administration of food programs for mothers and children. The same proof of entitlement can be used to administer supplementary food programs for the elderly or for low-income or needy families. In the case of clothing subsidies, entitlement depends on proving the number and age of dependent children; both items are susceptible of proof through the use of the official certificates of birth. For housing, official records of birth can be used to prove not only the number of household members to be accommodated, but also their ages and relationships which, in turn, help determine the size and type of accommodation for which the family is eligible.

Marriage register. Entitlement to assistance for housing may depend on proof of marriage of the parents and thus the existence of a legal family unit. The marriage certificate provides such proof.

Death register. Although the register of death plays no direct role, the need for certain kinds of food can be revealed by the incidence of nutritional diseases that cause death, especially those that operate among young children in rural and economically depressed areas. The register of deaths, including a medically certified statement of the cause of death, provides the elements for the calculation of the probable incidence of nutritional deficiencies in various segments of the population, as reflected in the death rates for specific causes, such as avitaminosis. Recognition of such deficiencies can initiate steps to remedy the situation and help promote the exercise of the right to food.

Right to education

Article 13(1) of the International Covenant on Economic, Social and Cultural Rights transformed into international law Article 26(1) of the Universal Declaration and the subsequent Principle 7 of the Declaration of the Rights of the Child in the following words: "The States Parties...recognize the right of everyone to education." Article 13(2) goes on to recognize that achieving full realization of this right will require specific provisions, among which are that "Primary education shall be compulsory and available free to all" and that secondary and higher education "shall be made generally available and accessible to all by every appropriate means." The question arises as to how these rights can be enforced.

Birth register. The register of birth alone can supply a case list of potential first grade students who, by law, are required to enter school by a certain age. Without such a list as a mechanism of enforcement, the concept of "compulsory education" is meaningless. In addition,

such a list would go far to ensuring "parity of enrollment at the primary level of education," that is, the right of girls and women to education, equal to that of boys and men, as emphasized in Article 9 of the Declaration on the Elimination of Discrimination against Women. On the individual level, parents or guardians can use a valid birth certificate to prove the right of a child to receive free primary education, beginning at the age specified by law. Birth certification may also play a part in ensuring the general availability and accessibility of secondary and higher education.

Right to employment (work)

Article 6(1) of the International Covenant on Economic, Social and Cultural Rights recognizes the right to work (originally set forth in Article 23(1) of the Universal Declaration of Human Rights) but Article 10(3) of the Covenant goes further and states specifically that "States should also set age limits below which the paid employment of child labour should be prohibited and punishable by law." This important restriction is in strict accord with Principle 9 of the Declaration of the Rights of the Child which states that "The child shall not be admitted to employment before an appropriate minimum age..." The same text has been inserted in the draft Convention on the Rights of the Child, under discussion by the U.N. Commission on Human Rights. How can the employer be protected against charges of exploiting child labor? How can a young person prove his right to work?

Birth register. Proof of age for every young person engaged for work can be supplied by the official certificate of birth. The birth record may also be important for a person to qualify for employment programs restricted as to entrance age, such as those funded by Governments in times of widespread unemployment. The same proof may be utilized to terminate employment without dispute at a prescribed retirement age, such as 65 or 70 years. In addition to age, some employment opportunities require proof of nationality. In such cases, including government civil service and service in the military forces, the proof provided by a birth certificate may be crucial. In other cases, provisions for preferential admission to publicly financed employment may hinge on an individual being a parent of a large number of dependent children. The official records of the birth of the children could suffice to prove eligibility as to number and age.

Marriage register. Preferential admission to publicly financed employment may vary according to whether the candidate is married or unmarried. An official certificate of marriage may help implement the right to employment in such cases.

Right of family to protection

Both Article 16(3) of the Universal Declaration of Human Rights and Article 23(1) of the International Covenant on Civil and Political Rights state that "The family is the natural and fundamental group unit of society and is entitled to protection by society and the State." Article 10(1) of the International Covenant on Economic, Social and Cultural Rights puts it as follows: "The widest possible protection and assistance should be accorded to the family, which is the natural and fundamental group unit of society, particularly for its establishment and while it is responsible for the care and education of dependent children..." The inclusion of this right in so many instruments attests to its importance.

The two principal forms of protection of the family are recurrent income increments, called "family allowances," and birth or maternity benefits, which are lump sum, nonrecurrent grants. Entitlement to both types of protection begins, as a rule, at the birth of a child. In some pronatalist countries, benefits and allowances may be paid only to very large families, while in countries with different population policies, they may be payable only for the first or second child. The size of

the benefit or allowance may also vary according to the number of children in the family. Another type of birth benefit not related specifically to childbirth is relief from taxation, based on proof of having a dependent child in the family.

Birth register. All of these types of support are contingent upon proof of birth and, in some cases, on proof of filiation, nationality, place of birth, birth order, age of child, and age of mother. The legal certificate of birth is the accepted proof of these characteristics for entitlement.

Right to health

The Universal Declaration of Human Rights made the first important statement concerning the right to health when, in Article 25(1), it proclaimed that "Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care..." This right was reiterated in the Declaration of the Rights of the Child wherein Principal 4 states that the child "shall be entitled to grow and develop in health; to this end, special care and protection shall be provided both to him and to his mother, including adequate pre-natal and post-natal care..." The International Covenant on Economic, Social and Cultural Rights (Article 12) puts it this way:

1. The States Parties to the present Covenant recognize the right of everyone to the enjoyment of the highest attainable standard of physical and mental health.
2. The steps to be taken by the States Parties to the present Covenant to achieve the full realization of this right shall include those necessary for:

(a) The provision for the reduction of the stillbirth rate and of infant mortality and for the healthy development of the child;
(b) The improvement of all aspects of environmental and industrial hygiene;
(c) The prevention, treatment and control of epidemic, endemic, occupational and other diseases;
(d) The creation of conditions which would assure to all medical service and medical attention in the event of sickness.

The question arises as to how to identify the child and his mother, in order to provide for their "healthy development" as called for by the Declaration and the Covenant.

Birth register. In many instances, the only guide to the existence of a child and a mother is the record of the birth in the official birth register. Arrangements are often made with civil registration officials to advise the public health authorities weekly or even daily of the names and addresses of newborn infants, so that the necessary postnatal care can be administered to the infant and the mother. Child clinics, as well as other public health units, often depend on the register of live births for their roster of cases. Failure to register the birth of a child could deprive him of the care he needs and might otherwise have had. He may also be deprived of the immunizations that should take place in the early months and years of childhood. Article 10(2) of the Covenant provides that "Special protection should be accorded to the mother during a reasonable period before and after childbirth...." Failure to register the birth of a child and thereby link the mother through the child to the medical care unit that deals with maternal health, may also deprive her of her right to postnatal care. The current register of births has also been used to identify women who might be interested in learning about family planning.

Reduction of the stillbirth and infant mortality rates, called for in Article 12(2)(a), is an obligation on the States Parties to the International Covenant on Economic, Social and Cultural

Rights, as steps toward achievement of the full realization of the right to health. To calculate these rates, the numbers of stillbirths, infant deaths and live births are required. Only the register of births can provide the denominator for these rates on a continuous basis.

Death register. The death register provides the number of infant deaths (deaths under one year of age) required for the computation of the infant mortality rate referred to above. Registration of death, especially the cause of death, also provides the information required for the statistical determination of maternal mortality rates and of the incidence of various diseases that cause death. They are necessary to ensure that, as provided in Article 12(2)(a) and (c) of the International Covenant on Economic, Social and Cultural Rights, States can take the steps necessary for "the healthy development of the child" and "the prevention, treatment and control of epidemic, endemic, occupational and other diseases." Analysis of the official records of the causes of death also provides guidance to fruitful avenues of medical research.

Fetal death register. The register of fetal deaths provides the number of stillbirths (late fetal deaths) needed for the calculation of the stillbirth rate, utilizing the corresponding number of live births as the denominator of the rate or ratio. Since the incidence of fetal deaths is relatively small, it would not be possible to obtain the required numbers from any source other than the civil register of fetal deaths nor would it be possible to monitor such indices over time and for small geographic areas as required for designing efforts to reduce them.

Right to inherit

The right to inherit either by testamentary succession (by will) or intestate (by law) is not specifically mentioned in either the Universal Declaration or the Human Rights Covenants, but it is cited in Article 5(d) of the International Convention on the Elimination of All Forms of Racial Discrimination, which entered into force 4 January 1969. Article 5(d) spells out a series of civil rights which States Parties undertake to guarantee; among these is (vi) "the right to inherit." "The right to acquire, administer, enjoy, dispose of and inherit property..." is also guaranteed in Article 6(1)(a) of the Declaration on the Elimination of Discrimination against Women, proclaimed by the General Assembly in Resolution 2263 (XXII) of 7 November 1967. According to the United Nations *Study of Discrimination Against Persons Born out of Wedlock*, "the formal establishment of filiation is of crucial importance in the matter of inheritance rights, more so than in regard to any other right. The title to succeed by operation of the law and to share in the deceased's estate, is parental filiation...The establishment of parental filiation is indispensable for the purposes of succession by operation of law."

Birth register. Proof of parental filiation and hence the right to inherit by law can be had from the birth certificate, since that legal document contains not only the surname and given name of the inheritor, but also the names of the father and mother, and, in some cases, those of the grandparents as well. Proof of identity required in implementing the right to inherit by testamentary succession can also be had from the birth register.

Death register. Equally important to the right to inherit is the official proof that the person who held the property has, indeed, died. The official death record certifies to the fact of death, as well as to its time and place of occurrence.

Marriage register. The role of the marriage register in implementing the right to inherit is supplementary to the role of the birth and death record. Proof of marriage provided by the certified copy of the marriage recorded in an official register automatically ensures the right of a surviving spouse to inherit, in accordance with the law, and may also substantiate the claim of a surviving child.

Right to marry

According to Article 16(1) of the Universal Declaration and Article 23(2) of the International Covenant on Civil and Political Rights, men and women of full (marriageable) age have the right to marry. "Full or marriageable age" in this context means the minimum age set by law to prohibit child marriage. Reference to such a minimum may be found also in Article 2 of the Convention on Consent to Marriage, Minimum Age for Marriage and Registration of Marriages which entered into force 9 December 1964. How can the State be sure that the intending spouses are indeed of "full age" as defined by the laws of the country?

Birth register. In most countries, the bride and groom are required to produce a birth certificate to prove that they have met the age qualification for entering into a legal marriage. Since it contains information on parental filiation, the birth certificate can also provide proof that the intending spouses are not related by blood to the degree that would deny them the right to marry on the basis of consanguinity.

Death register. In addition to the age and consanguinity constraints, the right to marry assumes that the intending spouses have a personal status that allows them to enter into a marriage, according to the law of each country. In countries where monogamy prevails, the right of a widow or widower to remarry may require proof of the death of the previous spouse. Documents from the official register of death provide such proof.

Divorce register. In the case of divorced persons in monogamous societies, the official divorce record provides proof of freedom to enter into a second or subsequent marriage.

Right to own property

Article 17(1) of the Universal Declaration of Human Rights states that "Everyone has the right to own property alone as well as in association with others." In Article 6(1)(a) of the Declaration on the Elimination of Discrimination against Women (proclaimed 7 November 1967) this basic right was stated as "The right to acquire, administer, enjoy, dispose of and inherit property, including property acquired during marriage." Subsequently, Article 5(d)(v) of the International Convention on the Elimination of All Forms of Racial Discrimination, which entered into force on 4 January 1969, committed signatory States to guarantee "The right to own property alone as well as in association with others."

Birth register. The birth record provides proof of identity for the exercise of the right to own property, as well as proof of having attained the age prescribed for enjoyment of the right, if such exists in national law.

Right to migrate

The right of everyone "to leave any country, including his own, and to return to his country" was proclaimed first in Article 13(2) of the Universal Declaration of Human Rights. It became part of international law in 1976 as Article 12(2) of the International Covenant of Civil and Political Rights.

Birth register. Rights to freedom of movement and choice of residence are usually subject to certain restrictions, such as the possession of a valid passport and visas as required by law. The record in the official register of birth attests to the nationality (citizenship) of the person in question by virtue of his having been native born. Hence the birth record entities him to a passport or other travel document, issued by his country of citizenship. Naturalized citizens would require other proof of citizenship.

Right to social security

"Everyone...has the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control," according to Article 25(1) of the Universal Declaration of Human Rights. The International Covenant on Economic, Social and Cultural Rights made this right part of international law by Article 9, which proclaims that "The States Parties to the present Covenant recognize the right of everyone to social security, including social insurance." The Covenant goes on to state in Article 10(2) that "Special protection should be accorded to mothers during a reasonable period before and after childbirth. During such period, working mothers should be accorded paid leave or leave with adequate social security benefits." This is in accord with Principle 4 of the Declaration of the Rights of the Child, wherein it is stated that "The child shall enjoy the benefits of social security. He shall be entitled to grow and develop in health; to this end, special protection shall be provided both to him and to his mother, including adequate pre-natal and post-natal care..." Principle 5 proclaims that "The child who is physically, mentally or socially handicapped shall be given the special treatment, education and care required by his particular condition."

Birth register. In the event that the family cannot, for whatever reason, provide for the welfare of a member (child or adult) or in case this person is ill, disabled or otherwise handicapped, the certificate of birth, certifying to age, nationality and relationship to head of the household, can serve to prove entitlement to social security benefits. When benefits are restricted to minors, the proof of age is especially important. For adults, eligibility for invalidity pensions are often based on years of service in employment before a determined age, as well as on nationality. Again the birth record can provide proof of these characteristics.

Orphans' benefits are similarly dependent on proof of birth at entry into the system, and their duration is governed by age of the orphan. In some countries, parents or grandparents may be the beneficiaries of a pension upon the death of a child or grandchild for whom they were responsible. Entitlement depends on proof of the relationship contained in the records of birth of the child and his parents.

Eligibility for widows' benefits is often dependent on having a birth certificate for the mother, as proof of her age and nationality, and of each child, as proof of filiation and age. The claim of a mother for prenatal and postnatal maternity leave with pay or benefits requires proof of birth of the child, provided by a birth certificate. Childcare grants also depend on the certificate for proof of the birth and age of the child. Entitlement to old-age benefits, private pensions and insurance benefits requires official proof of having attained the required age, provided by an official record of birth.

Death register. The right of a family unit to protection may arise when the breadwinner dies without providing for the continued well-being of the family. The family may be entitled to allowances or insurance from the State or other authority. A certified copy of the death record provides the necessary proof of the death of the breadwinner for these benefits, as well as proof of death required for establishing beneficiary status in respect of private pensions.

Marriage register. Proof that a surviving partner of a marriage is entitled to public assistance by virtue of widowhood can be had from the certificate of marriage filed in the official register. In some cases, persons other than nationals are entitled to survivors benefits if their last (preceding) marriage was to a national. In such cases, the official marriage certificate is of vital importance to prove the marriage did occur.

Rights of spouses to custody of children

Article 23(4) of the International Covenant on Civil and Political Rights requires signatory States to "take appropriate steps to ensure equality of rights and responsibilities of spouses as to marriage, during marriage, and at its dissolution. In the case of dissolution, provision shall be made for the necessary protection of any children." In cases where the dissolution of the marriage is due to the death of one partner, protection of children, including custody, is generally assigned to the surviving spouse. In case of a legal dissolution, arrangements are made for child custody with the spouse most likely to provide best for their protection. In some countries, the age of the children is a determining factor.

Birth register. Proof that a child is indeed an offspring of the spouse in question can be obtained from a certificate of registration of the birth. Records of legitimate births contain the names of both parents; records of illegitimate births may contain only the name of the mother. Birth certificates are also required to prove the age of the offspring where this is a determining factor.

Death register. The right of the surviving spouse to custody of the children of the marriage requires proof of the death of the other partner in the marriage of which the children are the offspring. The death register provides such proof.

Marriage register. In case of the death of one partner, the certificate of a legal marriage protects the surviving spouse from illegal treatment with respect to many marital rights, including custody of the surviving children.

Divorce register. When the marriage is dissolved by divorce (or other legal means) the official divorce record usually contains information on the court's disposition of the surviving children of the marriage. It thus protects both partners in the dissolved marriage from illegal treatment in respect of the custody of the children.

Right of spouses to equality

"Equality of rights and responsibilities of spouses as to marriage, during marriage and at its dissolution..." is guaranteed in Article 23(4) of the International Covenant on Civil and Political Rights wherein States Parties to the Covenant are enjoined to "take appropriate steps to ensure equality..." How can such a right be realized?

Birth register. Registration of each child born to the union ensures that each spouse was recognized as a legal parent with the rights inherent in that status.

Death register. Marriages dissolved by death of one spouse require registration of the death in an official register to protect the interests of the surviving spouse as to assets, children, death benefits, the right to remarry and so forth.

Marriage register. As indicated elsewhere, the right to protection from child marriage and forced marriage is guaranteed by the official registration of marriage by a competent authority. A legal marriage, properly registered, also protects the wife as well as the husband from illegal treatment in respect of many marital rights, such as custody of children when the marriage is dissolved by death, divorce or other legal action; right to inherit and bequeath property; independent ownership of property; right to work without husband's consent; right to remarry; right to separate legal domicile and so forth.

Divorce resister. Safeguarding the rights of the wife and the children of the marriage rests on requiring that divorce be recorded in an official register to protect women from unilateral divorce procedures. Such registration also affords them such protection as is available by law,

such as child support, child custody, enforceable alimony rights and the sharing of jointly owned assets.

Right to vote and to stand for election

"Universal and equal suffrage," proclaimed in Article 21(3) of the Universal Declaration of Human Rights, became Article 25(b) of the International Covenant on Civil and Political Rights, guaranteeing that "Every citizen shall have the right and the opportunity...to vote and to be elected...." Enjoyment of both the right to vote and to stand for election may, however, be constrained by a minimum age and citizenship requirement.

Birth register. The minimum age for voting differs from one country to another, but whatever the level, the certificate of birth from the official birth register is the document most often used to prove that an individual has reached the required legal age to exercise his franchise. Proof of citizenship can also be had from the birth record in the case of persons born within the country concerned or of parents who are nationals. For naturalized as opposed to native-born citizens, proof of naturalization would also be required.

ORGANIZATION OF NATIONAL CIVIL REGISTRATION AND VITAL STATISTICS SYSTEMS: AN UPDATE[1]

International Institute for Vital
Registration and Statistics

Introduction

For international comparison of vital statistics, it is imperative that the same definitions of vital events be adopted by each country. The data should also be classified in the same manner, and the basic tabulations should be the same. International definitions and statistical conventions adopted over the years have done much to bring about uniformity in definitions and classification of data.

To produce uniform statistics, the registration practices also need to be the same within and among countries. Coordination within countries is exercised by the national registration office in countries where the registration system is centralized and by the national vital statistics office in countries where the registration system is decentralized. On the other hand, there is no mechanism for achieving uniformity of registration practices among countries aside from the international statistics conventions.

In all countries, the informant designated by law notifies the local registrar and provides demographic and other information about a vital event. The corresponding data are entered in the register and stored for retrieval until a request is received for a certified copy of the record. The local registrar also prepares a copy of the record for statistical purposes and transmits it to the vital statistics agency. Compilations of vital statistics are made at the state and/or national office of vital statistics.

By and large, the civil registration and vital statistics functions and procedures are relatively simple and do not differ greatly among countries. On the other hand, the infrastructure of the civil registration and vital statistics system can be quite complex, and the organizational pattern varies greatly among countries.

To ascertain the organizational structure and national registration and vital statistics practices, the United Nations Statistical Division has conducted questionnaire surveys of the sources of vital statistics. The last such survey was undertaken between November 1976 and April 1979. In 1984, the IIVRS made a limited survey to broaden the coverage of information on national civil registration and vital statistics systems. The results of that survey were reported in the IIVRS Technical Paper No. 29 in 1986.

In the 1984 survey, a civil registration questionnaire and a vital statistics questionnaire were sent to the respective offices represented in the IIVRS membership. Three follow-ups were made over a period of 7 to 8 months. The quality of responses received was generally good, but the response rate, especially for the civil registration questionnaire, was poor (less than 50 percent). It was thought, at that time, that the poor response rate was attributable to the difficulty of identifying all the national civil registration offices. Another possible reason may have been a language problem. If the questionnaire had been framed in one of the official languages of each country, instead of English, a better response may have resulted.

In 1994, another questionnaire survey was conducted to update the information obtained some 10 years before. This new survey also provided an opportunity to obtain data for the newly

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[1]This article is an edited version of IIVRS Technical Paper No. 63, December 1995.

established republics of the former Soviet Union and eastern Europe. This report uses the 1994 data to update the 1984 study of the organization of national civil registration and vital statistics systems. To address one of the perceived shortcomings of the 1984 survey, the questionnaires for the latest survey were prepared in English, French, and Spanish. The first batch of questionnaires was sent out in March of 1994. A follow-up was made about 7 months after the initial mailing. There was considerable improvement in the return of the questionnaire compared with the previous survey. The response rate for the civil registration portion increased from 46.7 percent in 1984 to 69.8 percent in 1994. The corresponding figures for the vital statistics questionnaire were 69.5 percent in 1984 and 83.8 percent in 1994. These improvements took place even though only one follow-up was made in the 1994 survey compared with three follow-ups in the 1984 round.

A good deal of information has been collected to date on the civil registration and vital statistics systems in the various countries. However, there are still 21 countries for which nothing is known about the organization of the registration and vital statistics systems. In addition, there are six countries for which no information is available with respect to the registration of vital events. The next step is to obtain worldwide coverage of information on the organization of national civil registration and vital statistics systems.

As in the earlier survey, the response rate (Table 1) for the vital statistics questionnaire was significantly higher than that for civil registration. Also, there was considerable variation in the response rates by region. As expected, the response rate was high for the European countries. Almost all the vital statistics offices in North America returned completed questionnaires, whereas most of the registration offices in the Caribbean area failed to respond.

Table 1. Questionnaire Response Rate, By Region, 1994
(Percent of countries)

	Civil registration	Vital statistics
All regions	69.8	83.8
Africa	63.0	74.0
North America	43.8	95.2
South America	60.0	80.0
Asia	70.0	85.0
Europe	80.0	94.2
Oceania	75.0	79.2

Organization of the Civil Registration System

Responses to the survey questionnaire about the organization of the civil registration system are presented for individual countries in Appendix A. A national registration system may be centralized or decentralized. In a decentralized system, there is no national registration office to oversee the national network of registration offices. Supervision is the responsibility of the autonomous state or provincial authorities. A decentralized system of registration is found in countries with a federated form of government where there is a division of power between the federal and state governments. In these countries, the principal function of the national office is

the compilation of national vital statistics. The national office of vital statistics is also charged with the responsibility for coordinating the activities of the registration offices in the autonomous states or provinces and for promoting the uniformity of registration practices and procedures. About 10 percent of the national civil registration systems are decentralized. The countries with a decentralized system may be identified in Appendix A by the absence of a national registration office.

In a centralized registration system, there is a national office over the state and local registration offices. This form of organization is found in countries where the powers of governance are centered in the national government. As may be seen in Table 2, the legal responsibility for civil registration in these countries is assumed by various ministries or departments. The principal ones are the Ministry of Interior (40 percent) and the Ministry of Justice (34 percent). In 11 percent of the countries, the Health Ministry is responsible for the registration function. These are logical choices. Because of the juridical uses of vital records, the Ministry of Justice would have considerable interest in the legal aspects of civil registration. The Ministry of Interior and the Ministry of Health are options for another reason. In the case of the Ministry of Interior, there is a national network of local government offices, whereas the Health Ministry will have, under its jurisdiction, community health centers and hospitals where births and deaths take place.

Table 2. Ministries Responsible for Civil Registration in Countries With Centralized Civil Registration Systems, by Region, 1994
(Number and percent of countries)

	Interior		Justice		Health		Other	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
All regions	67	40.3	56	33.7	18	10.8	25	15.1
Africa	26	54.2	9	18.8	4	8.3	9	18.8
North America	3	13.6	13	59.1	2	9.1	4	18.2
South America	4	40.0	5	50.0	0	0.0	1	10.0
Asia	17	41.5	12	29.3	8	19.5	4	9.8
Europe	16	29.9	12	35.3	1	2.9	5	14.7
Oceania	1	9.1	5	45.5	3	27.3	2	18.2

There are marked regional differences in the location of national registration offices. In over half of the African countries, the Home or Interior Ministry is responsible for civil registration, whereas very few countries in North America and Oceania reported having the registration of vital events centered in the Ministry of Interior. In the Caribbean and South American countries, and in Oceania, the Ministry of Justice is favored as the locus of responsibility for the civil registration function.

In many countries, civil registration is tied in organizationally with other government functions, such as population registries, personal identification and maintenance of national electoral rolls, and compilation of national vital statistics. In such cases, location of the registration function depends on the situation in the country. For example, civil registration is part of the population registration program in the Ministry of Interior in Denmark, Finland, and Israel. In Hungary, it is

associated with population registration under the Board of Councils of the Council of Ministers, whereas in Norway and Sweden, it is in the Ministry of Finance.

In countries with a centralized system, the national registration office may have a direct line of authority over the local registration offices. This appears to be the situation in about 65 percent of the countries. In the others, the national registration office gives advice and direction on technical matters to the personnel of the local registration offices under the administrative control of another ministry or department. This type of organization may make for a more complex administrative operation, especially if the local personnel also have responsibilities for functions other than civil registration, which they regard as more important than the registration of vital events.

Another important aspect of the registration network is the location and number of local registration offices. In the survey, it was not possible to determine the site of the registration offices, but information on the number of local registration offices was collected. There is a wide range in the number of local registration offices. Small countries like Macao, Hong Kong, Singapore, and Monaco, which are essentially large cities, have no need for an extensive network. Therefore, a few local registration offices can efficiently serve the public. On the other hand, most countries have the problem of reaching the rural population however remote. This effort requires many more local registration offices. The largest reported number is 225,000 in India. (No information is available for China or for the republics of the former Soviet Union.)

In terms of workload, the local registration offices or the local registrars in the rural areas of most countries have relatively little to do on matters concerning the registration of births and deaths. Theirs is a part-time activity registering, on average, fewer than one birth per day. Therefore, most of them do not regard registration to be an important part of their job. This situation poses a difficult management problem for the central registration office, especially where direct supervision of local registrars is not possible.

Although the public must have ready access to a local registration office, there appear to be too many local registration offices in most countries for the system to operate efficiently. The question of setting up an optimum network of local registration offices needs to be studied on a country-by-country basis. In such a study, consideration should be given to the consolidation of local registration offices and the establishment of subregistration offices. To reach remote and sparsely settled areas, the possibility of using mobile units to serve those areas should be considered.

Organization of the Vital Statistics System

A central statistical office is responsible for the national compilation of vital statistics in most countries of the world. However, these statistical offices are located in various ministries (Table 3), the chief among them being the Ministry of Finance and Economics (29 percent), and the Ministry of Planning (26 percent). In about 11 percent of the countries, the central statistical office is under the jurisdiction of the Ministry of Interior, where most of the national registration offices are located. In other countries, the central statistical offices are independent agencies or in the office of the President or Prime Minister. In about 14 percent of the countries, the compilation of national vital statistics is the responsibility of the Health Ministry.

Table 3. Ministries Responsible for Vital Statistics, by Region, 1994
(Number and percent of countries)

	Planning		Finance and Economics		Interior		Health		Other	
	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
All regions	36	25.7	41	29.3	16	11.4	19	13.6	28	20.0
Africa	23	51.1	10	22.2	3	6.7	3	6.7	6	13.3
North America	1	4.5	13	59.1	2	9.1	3	13.6	3	13.6
South America	2	20.0	2	20.0	0	0.0	2	20.0	4	40.0
Asia	8	25.0	1	3.1	7	21.9	9	25.0	8	25.0
Europe	1	4.2	12	50.0	4	16.7	1	4.2	6	25.0
Oceania	1	14.3	3	42.9	0	0.0	2	28.6	1	14.3

In about 20 percent of the countries, the civil registration and the vital statistics functions are carried out in the same department or ministry. The advantage of having vital statistics and civil registration in the same ministry or administration is that it makes communication between the two agencies less difficult. This is most important from the standpoint of compilation of national vital statistics, where uniformity of data is a prime requisite. It is essential that all the areas in a country use the same basic definitions and registration procedures, identical forms in the collection of data, and the same classifications so there will be comparability in the statistics produced from records of vital events registered in different parts of the country. Without a close working relationship between the vital statistics and the registration authorities, it will not be possible to produce comparable vital statistics from place to place within the country from year to year.

The problems of communication and coordination become more difficult when the vital statistics and the registration functions are in different ministries or departments. More difficult still are problems in some countries where the civil registration system is decentralized to a subnational level. In such countries, the vital statistics authorities have to deal with a number of autonomous bodies. Much of the success in these cases depends on the quality of national leadership and the good will of all concerned.

There are still a few national vital statistics offices without data processing equipment. Also, there are some that are not yet publishing vital statistics or are not current in the issuance of their annual vital statistics reports. Another problem area is the production of cause-of-death statistics in the developing countries where not many deaths are attended by a medical practitioner. In these cases, there are relatively few medical certifications of causes of death on which to base cause-of-death statistics.

Status of Civil Registration and Vital Statistics

A comprehensive evaluation of the status or the state of development of the civil registration and vital statistics systems involves the assessment of various aspects of the registration and statistical processes, such as the adequacy of registration laws and regulations, promptness and completeness of registration, efficiency in providing certification of vital events, quality and

completeness of data, efficiency of data processing, adequacy and usefulness of data produced, timeliness in the issuance of data, etc. Of these, perhaps the most useful single index of status is the measure of completeness with which births and deaths are registered.

Periodically, the countries are asked by the United Nations to make an assessment of the registration completeness of births and deaths. These evaluations, (C) for registration completeness of 90 percent or more and (U) for completeness of less than 90 percent, are published by the United Nations in the *Demographic Yearbook* and the *Population and Vital Statistics Report*. In some cases, the evaluations are based on the results of sample surveys. Most of them are "guesstimates." However, in terms of the United Nations standard of completeness, these estimates probably represent a reasonably good assessment of the situation. In some instances, the national authorities may be overoptimistic about the effectiveness of the compulsory provisions of the registration law.

Data on completeness of birth and death registration as reported by the countries are shown in Appendix B and summarized in Table 4. Birth registration was considered to be complete in 54 percent of the countries that reported this information. The corresponding figure for death registration was 51 percent. These percentages are significantly higher than those reported in the previous survey. However, these comparisons do not necessarily mean that there has been an improvement in the registration of vital statistics in the various countries. The differences are attributable mainly to reports from several newly established countries in Europe and Asia for which no previous information was available.

Table 4. Number and Percent of Countries in the Region Reporting Complete Registration of Births and Deaths

	Birth registration		Death registration	
	No.	Percent	No.	Percent
All regions	119	54.3	111	50.7
Africa	10	19.6	7	13.7
North America	27	81.8	26	78.8
South America	5	41.7	5	41.7
Asia	22	68.8	19	59.4
Europe	44	95.7	44	95.7
Oceania	11	66.4	10	55.6

Births and deaths are completely registered in almost all the countries in Europe reporting this information. Registration coverage is also relatively good in the countries of North America, which includes the Caribbean and Central America. At the other end of the range are the African countries. Except for the island nations, registration coverage is poor in the sub-Saharan countries. Also, there is need for substantial improvement in registration coverage in Asia, South America, and Oceania.

Summary

This is a report on the organization and status of national civil registration and vital statistics systems based on a questionnaire survey conducted in 1994. The survey shows that the organizational pattern of the national civil registration network varies considerably among countries. In 90 percent of the countries, the system is centralized, that is, local registration offices are under the technical direction of a central office in the national government. In the 10 percent of countries where the system is decentralized, there is no national registration office as such and civil registration is a function carried out by the state or provincial government.

There was considerable improvement in the response rate to the present questionnaire survey over that conducted 10 years earlier. However, there are still a number of countries for which no information is available on the organization of the civil registration and vital statistics systems.

In 40 percent of the countries with a centralized registration system, the Ministry of Interior or Home Affairs is responsible for the registration function. In 34 percent, the Ministry of Justice is in charge of registering vital events. The Health Ministry, with its network of health centers, is responsible for civil registration in 11 percent of the countries. There is a notable regional pattern in the national organization of the registration systems.

In about 65 percent of countries with a centralized registration system, a national office has a direct line of authority over the entire network of registration offices. In the others, the local registration offices are staffed on a part-time basis by personnel of another ministry. This situation gives rise to problems in the supervision of registration activities.

The accessibility of registration to the public is determined by the number and location of the local offices. Few countries can afford the luxury of a registration network exclusively for that purpose. The use of existing local government facilities usually results in a less than ideal organizational arrangement for the registration of vital events. One disadvantage—the dependence on part-time employees of another ministry—has already been mentioned. Another problem is the number of local registration offices in the system. That number varies greatly by country and ranges from two or three offices in a small country to almost a quarter of a million in India. The number of local registration offices in rural areas in most countries is such that, on average, fewer than one vital event is registered per day. With such a small workload, it is difficult to impress upon the local registrar the importance of this activity. It is also difficult to upgrade the position of the local registrar. The problem of establishing a registration network to best serve the public in an efficient manner is an important one and deserves study.

As expected, the central statistical office is charged with the responsibility for compiling national vital statistics in most countries. In more than half of the countries, the central statistical office is located in the Ministry of Finance and Economics or the Ministry of Planning. In about 14 percent of the countries, the Ministry of Health is responsible for compiling national vital statistics. In about 11 percent of the countries, the central statistical office is part of the Ministry of Interior, where most of the national registration offices are located.

For ease of coordination and operation, it would be desirable to have the national registration and vital statistics agencies located in the same ministry or department. This is usually not the case. In only 20 percent of the countries do we find that the civil registration and vital statistics functions are carried out in the same ministry. In countries with a decentralized system of registration, the problem of coordination is more difficult because the national vital statistics office has to deal with registration offices in whatever number of independent federated states.

As of the time of the previous questionnaire in 1984, the registration of births and deaths was considered to be complete in about one half of the countries of the world. The results of this

survey show a substantial increase in the percent of countries with complete registration. This increase, however, is attributable not so much to an actual improvement in registration but rather to the addition to the survey of the newly formed republics in eastern Europe and the former Soviet Union, where registration is virtually complete.

Appendix A. Agencies Responsible for Civil Registration and National Vital Statistics: Countries by Region

COUNTRY	CIVIL REGISTRATION ADMINISTRATION		NATIONAL VITAL STATISTICS OFFICE
	Subnational	National	
Africa			
Algeria	...	Ministère de l'Intérieur	Office National des Statistiques, Premier Ministère
Angola	Registo civil	Direccão Nacional dos Registos Notariado e Identificação, Ministerio de Justiça	Direccão Nacional de Estatística, Ministério de Plano
Benin	Mairie	Ministère de l'Intérieur	Institut National de la Statistique et de l'Analyses Economiques, Ministère du Plan et de la Reconstruction Economique
Botswana	District Commissioner's Office	Civil Registration Division, Ministry of Labour and Home Affairs	Central Statistical Office, Ministry of Finance and Development Planning
Burkina Faso	Centres d'état civil	Ministère de l'Administration Territoriale	Institut National de la Statistique et de la Démographie, Ministère du Plan et de la Coopération
Burundi	...	Dèpartement de la Population, Ministère de l'Intérieur	Département de la Population, Ministère de l'Intérieur
Cameroon	Bureau Municipal, Ministère de l'Administration Territoriale	Service d'Etat Civil, Ministère de l'Administration Territoriale	Direction de la Statistique et de la Comptabilité Nationale, Ministère du Plan et Aménagement du Territoire
Cape Verde	Secretariado administrativo	Direccão Geral dos Registos e Notariado, Ministerio de Justiça	Direccão Geral de Estatística, Ministerio de Coordenação Econômica

Appendix A (Continued)

COUNTRY	CIVIL REGISTRATION ADMINISTRATION		NATIONAL VITAL STATISTICS OFFICE
	Subnational	National	
Central African Republic	Centres d'état civil	Service de l'Etat Civil et de la Démographie, Ministère de la Sécurité Public et de l'Administration	Service de l'Etat Civil et du Recensement Démographique, Ministère de l'Intérieur
Chad	Centres d'état civil, Ministère de l'Intérieur et de la Sécurité	Direction de la Statistique, des Etudes Economiques et Démographiques, Ministère du Plan et de la Coopération	Direction de la Statistique, des Etudes Economiques et Démographiques, Ministère du Plan et de la Coopération
Comoros	...	...	...
Congo	Bureau d'Etat Civil, Ministère de l'Intérieur	Direction National de l'Etat Civil, Ministère de l'Intérieur	Centre National de la Statistique et des Economiques, Ministère du Plan et de l'Economie
Djibouti	...	Direction de la Population, Ministère de l'Intérieur, des Postes et Télécommunications	Direction National de la Statistique, Ministère du Commerce, Transports, et du Tourisme
Egypt	Health centers	Civil Registration Department, Ministry of Interior	Central Agency for Public Mobilization and Statistics
Equatorial Guinea	District courts of justice	Juzcado de Distrito, Ministério de Justiça, Culto e Registro Civil	Ministério de Justiça, Culto e Registro Civil
Ethiopia	...	Ministry of Interior (rural areas), Ministry of Housing and Urban Development (urban areas)	Central Statistical Authorities
Gabon	Centres principaux et secondaires	Ministères de l'Intérieur et de la Justice	...
Gambia, The	Health inspectors	Medical and Health Department, Ministry of Health, Labour, and Social Welfare	Medical and Health Department, Ministry of Health, Labour, and Social Welfare

Appendix A (Continued)

COUNTRY	CIVIL REGISTRATION ADMINISTRATION		NATIONAL VITAL STATISTICS OFFICE
	Subnational	National	
Ghana	Municipal offices, hospitals, and health centers	Births and Deaths Registry, Central Registry Office, Ministry of Local Government	Births and Deaths Registry, Central Registry Office, Ministry of Local Government
Guinea	...	...	...
Guinea-Bissau	Delegaçãoes do Registro Civil (Sector Regional)	Registro Civil, Comissariado de Estado de Justiça	Direção Geral de Estatística, Comissariado de Estado de Desenvolvimento Econômico e Planificação
Ivory Coast	Les Mairies et Sous-Préfectures	Ministère de l'Intérieur	Institut National de la Statistique, Ministère de l'Economique, Finances et Plan
Kenya	Local registry offices and district registers	Department of Civil Registration, Office of the President	Central Bureau of Statistics, Ministry of Planning and National Development
Lesotho	District secretaries	Registrar General's Office, Ministry of Law and Human Rights	Bureau of Statistics, Ministry of Planning, Economic and Manpower Development
Liberia	County registrars	Bureau of Health and Vital Statistics, Ministry of Health and Social Welfare	Bureau of Health and Vital Statistics, Ministry of Health and Social Welfare
Libya	Civil registration office	Civil Registration Section, Secretariat of Utilities	Census and Statistics Department, Secretariat of Planning
Madagascar	Communes	Direction du Contrôle et de la Tutelle des Collectivités, Ministère de l'Intérieur	Institut National de la Statistique et de la Recherche Economique, Présidence chargé des Finances et du Plan
Malawi	District commissioners	Department of the Registrar General, Ministry of Justice	National Statistical Office, Office of the President
Mali	Centres d'état civil	Direction National de l'Administration Territoriale, Ministère d'Etat chargé de l'Administration Territoriale et de la Sécurité Intérieur	Direction Nationale de la Statistique et de l'Information, Ministère des Finances, de l'Economie et du Plan

Appendix A (Continued)

COUNTRY	CIVIL REGISTRATION ADMINISTRATION		NATIONAL VITAL STATISTICS OFFICE
	Subnational	National	
Mauritania	...	Secretariat d'Etat Civil, Ministère de l'Intérieur, des Postes et Télécommunications	Secretariat d'Etat Civil, Office National de la Statistique, Ministère du Plan et de l'Aménagement du Territoire
Mauritius	Civil Status Office	Civil Status Office, Prime Minister's Office	Central Statistical Office, Ministry of Economic Planning and Development
Morocco	Bureaux locaux d'état civil	Division d'Etat Civil, Ministère de l'Intérieur	Direction de la Statistique, Ministère chargé de l'incitation de l'Economie, Premier Ministère
Mozambique	...	Direccão Nacional dos Registos e Notoriados	Direccão Nacional de Estatística, Comissão Nacional do Plano
Namibia	...	Department of Civil Affairs, Ministry of Home Affairs	Central Statistical Office, National Planning Commission
Niger	...	Direction de l'Etat Civil et de Population, Ministère de l'Intérieur	Direction de la Statistique et des Comptes Nationaux, Ministère du Plan
Nigeria	State ministries of health, local government and teaching hospitals	National Population Commission Presidency	National Population Commission Presidency
Réunion	...	...	...
Rwanda	Bureaux communaux d'état civil	Direction Générale des Affaires Politiques et Administratives, Ministère de l'Intérieur et du Développement Communal	Direction Générale de la Statistique, Ministère du Plan
Saint Helena	...	...	...
São Tome and Principe	...	Departamento de Registo Civil, Ministério de Justiça e Função Pública	Direccão de Estatística, Ministério de Economia e Finanças

COUNTRY	CIVIL REGISTRATION ADMINISTRATION		NATIONAL VITAL STATISTICS OFFICE
	Subnational	National	
Senegal	...	Projet de l'Etat Civil, Ministère chargé de la Décentralization	Direction de la Statistique, Ministère des Finances et des Affaires Economiques
Seychelles	Government administration	Civil Status Division, Department of Youth and Defense	Statistical Section, Management Information Systems Division, Department of Finance
Sierra Leone	Births and deaths office, Ministry of Health	Office of the Chief Registrar, Ministry of Health	Medical Statistics Unit, Ministry of Health
Somalia	None	None	None
South Africa	District representatives	Department of Home Affairs, Department of Co-operation and Development	Central Statistical Services, Department of Constitutional Development and Planning
Sudan	Hospitals, dispensaries, dressing stations	Ministry of Health	Department of Statistics, Ministry of Finance and Economic Planning
Swaziland	Hospitals, clinics, police stations, chiefs of areas	Registrar General's Office, Ministry of Justice	Central Statistical Office, Department of Economic Planning and Statistics
Tanzania	Health centers	Office of the Registrar General, Ministry of Justice	Bureau of Statistics, Ministry of Planning and Economic Affairs
Togo	Centres d'état civil	Division des Affaires Politiques et Administratives, Ministère de l'Intérieur	Direction de la Statistique, Ministère du Plan
Tunisia	Centres d'état civil (Commune)	Ministère de l'Intérieur	Direction des Statistiques, Démographiques et Sociales, Institut National de la Statistique, Ministère du Plan
Uganda	Subcountry headquarters, Ministry of Local Government	Registrar General of Births and Deaths, Ministry of Justice	Statistics Department, Ministry of Finance and Economic Planning
Western Sahara	...	...	...

Appendix A (Continued)

COUNTRY	CIVIL REGISTRATION ADMINISTRATION		NATIONAL VITAL STATISTICS OFFICE
	Subnational	National	
Zaire	Bureaux de l'état civil	Etat Zairois, Ministère de l'Administration du Territoire	Institut National de la Statistique, Ministère du Plan
Zambia	Provincial, district, and subcenters (schools, health centers, and local courts)	Department of National Registration, Ministry of Home Affairs	Census and Statistics Department
Zimbabwe	Provincial and district registries	Central Registry, Ministry of Home Affairs	Central Statistical Office, Ministry of Finance, Economic Planning, and Development
North America			
Anguilla	...	...	...
Antigua and Barbuda	...	...	Statistics Division, Ministry of Finance
Bahamas	District Register Office	Registrar General's Department, Office of the Attorney General	Department of Statistics, Ministry of Finance
Barbados	Subsidiary registration offices	Registration Department, Attorney General, Supreme Court	Statistical Service
Belize	District offices for civil registry	Registry, Judiciary Department	Central Statistical Office, Ministry of Finance
Bermuda	...	Registry General, Ministry of Labour and Home Affairs	Registry General, Ministry of Labour and Home Affairs
British Virgin Islands	...	...	...
Canada	Provincial and territorial vital statistics offices (Health)	None	Statistics Canada
Cayman Islands	Subregistration Office, District Post Office	Registrar of Companies Department, Department of Finance and Development	Economics and Statistics Office

COUNTRY	CIVIL REGISTRATION ADMINISTRATION		NATIONAL VITAL STATISTICS OFFICE
	Subnational	National	
Costa Rica	Regional offices	Dirección General de Registro Civil, Tribunal Supremo de Elecciones	Dirección General de Estadística y Censos, Ministerio de Economía y Comercio
Cuba	Oficina de Registro Civil	Dirección de Registro Civil y Notariado, Ministerio de Justicia	Instituto de Investigaciones Estadísticas, Oficina Nacional de Estadísticas, Ministerio de Economía y Planificación
Dominica	...	Registrar General, Supreme Court	Statistical Office, Ministry of Finance
Dominican Republic	Oficina de Estado Civil	Junta Central Electoral, Organismo o tribunal que organiza las elecciones nacionales	Oficina Nacional de Estadística, Dirección Nacional de Estadística
El Salvador	Oficina de Registro Civil	None	Dirección General de Estadística, Ministerio de Economía y Censos
Grenada	District revenue offices	Registrar General's Department, Ministry of Health	Registrar General's Department, Ministry of Health
Guadeloupe	...	...	...
Guatemala	Registro Civil	Tribunal Supremo Electoral	Dirección General de Estadística, Ministerio de Economía
Haiti	Ministère de la Santé Publique	Service National de l'Inspection et de Contrôle de l'Etat Civil, Ministère de la Justice	Institut Hatien de Statistique et d'Informatique
Honduras	Oficina Municipal, Centro de Salud	Dirección General de Estadística y Censos, Secretaría de Planificación, Coordinación y Presupuesto	Dirección General de Estadística y Censos, Secretaría de Planificación, Coordinación y Presupuesto
Jamaica	...	Registrar General's Department, Ministry of National Security and Justice	Registrar General's Department, Ministry of National Security and Justice
Martinique	...	...	...

Appendix A (Continued)

COUNTRY	CIVIL REGISTRATION ADMINISTRATION		NATIONAL VITAL STATISTICS OFFICE
	Subnational	National	
Mexico	Municipal office, Health centers	Dirección General del Registro Nacional de Población e Identificación Personal, Secretaría de Gobernación	Instituto Nacional de Estadística, Geografía e Informática, Secretaría de Hacienda y Crédito Público
Montserrat	Court House, District registration office	Registrar General's Office, Judicial Department	Statistics Department, Ministry of Finance
Netherlands Antilles	...	...	...
Nicaragua	Registro Civil	Dirección General de Registro Civil, Ministerio de Justicia	Instituto Nacional de Estadística y Censos
Panama	Oficina del Registro Auxiliar de Estado Civil	Dirección General del Registro Civil	Dirección de Estadística y Censos, Controloría General de la República
Saint Kitts and Nevis	District registrars	Registrar General's Department, Ministry of Health	Registrar General's Department, Ministry of Health
Saint Lucia	District registrars	Registry of the Supreme Court, Ministry of Legal Affairs	Government Statistics Department, Ministry of Finance, Statistics, and Negotiating
Saint Pierre and Miquelon	...	...	...
Saint Vincent and the Grenadines	District registrars	Registrar General's Office, Registry Department	Statistics Office, Ministry of Finance and Planning
Trinidad and Tobago	Registry Office	Registrar General's Department, Ministry of Legal Affairs	Central Statistical Office, Ministry of Finance and Planning
Turks and Caicos Islands	...	Attorney General's Office	Office of the Prime Minister
United States	Local health departments	None	National Center for Health Statistics, Department of Health and Human Services
Virgin Islands	...	...	...

COUNTRY	CIVIL REGISTRATION ADMINISTRATION		NATIONAL VITAL STATISTICS OFFICE
	Subnational	National	
South America			
Argentina	Oficina del Registro Civil	None	Dirección de Estadística de Salud, Ministerio de Salud y Acción Social
Bolivia	Direcciones departamentales y oficinas locales de registro civil	Dirección Nacional de Registro Civil, Ministerio del Interior, Migración y Justicia	Instituto Nacional de Estadística, Ministerio de Planeamiento y Coordinación
Brazil	Cartórios de Registro de Pessoas Naturales	Ministério de Justiça	Fundação Instituto Brasileiro de Geografia e Estatística, Secretaria de Planejamento, Orçamento e Coordenação
Chile	Municipal offices, health center, and revenue office	Dirección Nacional del Servicio de Registro Civil e Identificación, Ministerio de Justicia	Instituto Nacional de Estadística, Ministerio de Economía, Fomento y Reconstrucción
Colombia	Municipal office, notary, and police station	Dirección Nacional de Registro Civil, Superintendencia de Notariado y Registro Civil, Ministerio de Justicia	Departamento Administrativo Nacional de Estadística
Ecuador	Oficina de Registro Civil	Dirección General de Registro Civil, Identificación y Cedulación, Ministerio de Gobierno	Instituto Nacional de Estadística y Censos, adscrito a la Vicepresidencia de la República
French Guiana	...	...	...
Guyana	Health centers, hospitals	General Registrar Office, Ministry of Home Affairs	Statistical Bureau, Ministry of Economic Planning and Finance
Paraguay	Oficina de Registro Civil	Dirección General del Registro de Estado Civil de las Personas, Ministerio de Justicia y Trabajo	Dirección General de Estadítica y Censos, Secretaría Técnica de Planificación del Desarrollo Económico y Social de la Presidencia
Peru	Oficina de Registro Civil	Oficina General de Asesoría Jurídica, Ministerio de Justicia	Instituto Nacional de Estadística e Informática, Primer Ministro

Appendix A (Continued)

COUNTRY	CIVIL REGISTRATION ADMINISTRATION		NATIONAL VITAL STATISTICS OFFICE
	Subnational	National	
Suriname	District registrars	Central Institute for Civil Registration, Ministry of Home Affairs, Bureau of Public Health	Central Institute for Civil Registration, Ministry of Home Affairs, Bureau of Public Health (death statistics)
Uruguay	Oficina de Registro de Estado Civil	Dirección General del Registro del Estado Civil, Ministerio de Educación y Cultura	División Estadística, Ministerio de Salud Pública
Venezuela	Prefecturas municipales, Gobernaciones de estado	Dirección de Registro Civil y Notario, Ministerio de Justicia	Oficina Central de Estadística e Informática, Secretaría de la Presidencia
Asia			
Afghanistan	Population Registration and Vital Statistics Directorate, Provincial Police Department	Population Registration Department, Ministry of Interior	Census and Survey Department, Central Statistics Office, Coordination Department
Armenia	Municipal offices, Ministry of Justice	Department of Civil Acts Registration, Ministry of Justice	State Committee on Statistics
Azerbaijan	Municipal offices	Ministry of Justice	State Committee on Statistics
Bahrain	Births and Deaths Registration Office	Births and Deaths Registration Office, Ministry of Health	Directorate of Statistics, Central Statistics Organization, Council of Ministers
Bangladesh	Tranas, municipalities	Ministry of Local Government	Bureau of Statistics, Ministry of Planning
Bhutan	Local administrative offices	Directorate of Registration, Census and Immigration Division, Ministry of Home Affairs	Central Statistical Organization, Planning Commission
Brunei	...	Registrar of Births and Deaths, Medical and Health Department, and Judicial Department	Ministry of Health

Appendix A (Continued)

COUNTRY	CIVIL REGISTRATION ADMINISTRATION		NATIONAL VITAL STATISTICS OFFICE
	Subnational	National	
China	City or County Public Bureau	Administration Division for Population Registration, Ministry of Public Security	Administration Division for Population Registration, Third Bureau, Ministry of Public Security
Cyprus	District office	Registration Service, Ministry of Interior	Department of Statistics and Research, Ministry of Finance
Georgia	...	Department of Notariate and Registration, Ministry of Justice	Committee on Socioeconomic Information, Department of Labour and Population Statistics
Hong Kong	Birth and Death Register Offices	Births, Deaths, and Marriages Subdivision, Immigration Department	Census and Statistics Department, Government Secretariat
India	Office of the Chief Registrar of Births and Deaths (State and Union Territory)	None	Office of the Registrar General, India Ministry of Home Affairs
Indonesia	Local government office	Directorate General of PYOD, Department of Interior	Central Bureau of Statistics, Department of Interior
Iran	National civil registration offices	Civil Registration Organization, Ministry of Interior	Civil Registration Organization, Ministry of Interior
Iraq	Chief medical office	Vital and Health Statistics Section, Directorate General for Medical Services	Vital and Health Statistics Section, Directorate General for Medical Services
Israel	Health centers, local population administration	Administration of Population, Ministry of Interior	Central Bureau of Statistics, Prime Minister's Office
Japan	City, town, and village administration offices	Civil Affairs Bureau, Ministry of Justice	Statistics and Information Department, Ministry of Health and Welfare
Jordan	Civil Registration Office	Civil Status Department, Ministry of Interior	Civil Status Department, Ministry of Interior

Appendix A (Continued)

COUNTRY	CIVIL REGISTRATION ADMINISTRATION		NATIONAL VITAL STATISTICS OFFICE
	Subnational	National	
Kampuchea	...	...	...
Kazakhstan	Municipal offices	Vital Registration Bodies, Ministry of Justice	State Committee on Statistics and Analysis
Kuwait	Health units	Department of Central Civil Registration, Ministry of Health	Central Statistical Office, Ministry of Planning
Kyrgyzstan	...	Registry Office, Ministry of Justice	Demographic Statistics Department, State Committee on Statistics
Laos	...	...	...
Lebanon	...	...	Central Statistical Office, Ministry of Planning
Macau	Conservatoria do Registo Civil	Direccão de Serviços de Justiça, Secretario-adjunto para a Administração	Direccão de Serviços de Estatística e Censos, Secretario-adjunto para os Assuntos
Malaysia	Municipal offices, health centers, police stations	National Registration Department, Ministry of Home Affairs	Department of Statistics, Prime Minister's Department
Maldives	Atoll office, Ministry of Justice (deaths)	Health Information Unit (births), Ministry of Health and Welfare, Ministry of Justice (deaths)	Health Information Unit (births), Ministry of Health and Welfare, Ministry of Justice (deaths)
Mongolia	Civil Registrar's Office	Notaries Office, Ministry of Justice	State Statistical Office, Cultural Education and Health Department
Myanmar	Township medical officers	Health Department, Ministry of Health	Central Statistical Organization, Ministry of National Planning and Economic Development
Nepal	Village Panchayat offices	Office of the Registrar, Ministry of Local Development	Office of the Registrar, Ministry of Home
Oman	...	Ministry of Health (not operational)	None

COUNTRY	CIVIL REGISTRATION ADMINISTRATION		NATIONAL VITAL STATISTICS OFFICE
	Subnational	National	
Pakistan	Department of Local Bodies and Rural Development	Civil Registration Organization, Ministry of Interior	Federal Bureau of Statistics, Ministry of Health, Special Education, and Social Welfare
Philippines	City health offices, Treasurer's office of municipalities	Office of the Civil Registrar General, National Statistical Office, National Economic and Development Authority	Office of the Civil Registrar General, National Statistical Office, National Economic and Development Authority
Qatar	Health centers	Preventive Health Department, Ministry of Public Health	Central Statistical Organization, Presidency of the Council of Ministers
Saudi Arabia	...	Directorate of Health Affairs and Directorate of Communicable Disease, Ministry of Health	Department of Statistics, Ministry of Health
Singapore	Registry of Births and Deaths	Registry of Births and Deaths, National Registration Department, Ministry of Home Affairs	Registry of Births and Deaths, National Registration Department, Ministry of Home Affairs
South Korea	Local government offices	Bureau of Registry, Ministry of Court Administration	National Statistical Office
Sri Lanka	District registrars	Registrar General's Department, Ministry of Home Affairs and Provincial Councils	Department of Census and Statistics, Ministry of Policy Planning and Implementation
Syria	...	Director General for Civil Registration, Ministry of Interior	Central Bureau of Statistics, Office of the Prime Minister
Tajikistan	...	Civil Registration Directorate, Ministry of Justice	State Statistical Agency
Thailand	Provincial and district administration	Administrative and Civil Registration Division, Ministry of Interior	Health Statistics Division, Ministry of Public Health

COUNTRY	CIVIL REGISTRATION ADMINISTRATION		NATIONAL VITAL STATISTICS OFFICE
	Subnational	National	
Turkey	Local state offices	General Directorate of Population and Citizenship Affairs, Ministry of Internal Affairs	State Institute of Statistics, Prime Minister's Office
Turkmenistan	...	...	...
United Arab Emirates	...	Central Preventive Medicine Directorate, Health Ministry	Central Statistical Department, Ministry of Planning
Uzbekistan	...	...	...
Vietnam	...	General Statistical Office, Ministry of Home	Population Statistics Division, General Statistical Office
Yemen	Local registration offices	Civil Registration Department, Ministry of Justice	...
Europe			
Albania	...	Central Directorate of Statistics, Council of Ministers	Central Directorate of Statistics, Council of Ministers
Andorra	...	...	...
Austria	Gemeinde, Standesamtsverband	Federal Ministry of Interior	Central Statistical Office
Belarus	Municipal Office	Executive Committees of Soviets of People's Deputies	State Committee on Statistics and Analysis
Belgium	Municipal offices	Registre National des Personnes, Ministère de l'Intérieur	Institut National de Statistique
Bosnia-Herzegovina	...	...	...
Bulgaria	Comités executifs des conseils populaires communaux	Commission de comités executifs aupres des conseils populaires, Conseil des Ministres	Comité sur les Problèmes du Système Integré d'Information

COUNTRY	CIVIL REGISTRATION ADMINISTRATION		NATIONAL VITAL STATISTICS OFFICE
	Subnational	National	
Channel Islands:			
Guernsey	None	Registrar General of Births, Deaths, and Marriages	Public Health Department, Board of Health
Jersey	None	Superintendent Registrar	Economic Advisor's Office
Croatia	Municipal office	Ministry of Justice and Public Administration	Central Bureau of Statistics
Czech Republic	...	...	Statistical Office, Ministry of Internal Affairs
Denmark	Folkeregisteret, State church office (births), Probate court (deaths)	Department of Person Registration, Ministry of Interior	Danmarks Statistik, Ministry of Economics
England and Wales	District Register Office	General Register Office, Office of Population Censuses	Office of Population Censuses and Surveys
Estonia	...	State Registry Office, Ministry of Justice	State Statistical Office, Ministry of Finance
Faroe Islands	...	...	...
Finland	District population register offices	Population Register Center, Ministry of Interior	Statistics Finland
France	Les Mairies de Commune	Ministère de la Justice	Institut National de la Statistique et des Etudes Economiques, Ministère de l'Economie, des Finances et du Budget
Germany	Local registry	Ministry of Interior	Federal Statistical Office
Gibraltar	Government office	Registry of Births, Deaths, and Marriages, Supreme Court	Statistics Office
Greece	Registry office	Division on Citizenship, Ministry of Interior	National Statistical Service, Ministry of National Economy

COUNTRY	CIVIL REGISTRATION ADMINISTRATION		NATIONAL VITAL STATISTICS OFFICE
	Subnational	National	
Hungary	Municipal offices	National Offices of Personal Data and Residential Address Registration, Ministry of Interior	Central Statistical Office
Iceland	Municipal offices	National Registry, Statistical Bureau	Statistical Bureau
Ireland	Health boards	General Register Office, Department of Health	Central Statistics Office, Department of the Taoiseach
Isle of Man	None	General Registry	General Registry and Treasury Statistician
Italy	Uffici di Stato, Civile dei Comuni	Direzione Generale Affari, Civili e Libere Professioni, Ministero di Grazia e Guistizia	Instituto Nazionale di Statistica
Latvia	...	Registry Department, Ministry of Justice	State Committee for Statistics, Ministry of Economy
Liechtenstein	Municipal office	Zivilstandsamt, Ministry of Interior	Amt für Volkswirtschaft, Office of National Economy
Lithuania	...	Department of Statistics	Department of Statistics
Luxembourg	Municipal offices	Administrations Communales	Service Central de la Statistique et des Etudes Economiques, Ministère de l'Economie
Macedonia	Municipal offices	Civil Registration Office, Ministry of Interior	Statistical Office
Malta	Police offices	Public Registry, Ministry of Justice and Parliamentary Affairs	Central Statistical Office
Moldova	...	Ministry of Justice	Department of Statistics
Monaco	None	Mairie de Monaco	Service des Statistiques et des Etudes Economiques, Ministère des Finances et Economie

COUNTRY	CIVIL REGISTRATION ADMINISTRATION		NATIONAL VITAL STATISTICS OFFICE
	Subnational	National	
Netherlands	Local registration office	None	Central Bureau of Statistics, Ministry of Economic Affairs
Norway	Revenue offices	Office of the National Register, Directorate of Taxes	Statistics Norway, Ministry of Finance
Poland	Civil registry offices	Ministry of Internal Affairs	Central Statistical Office, Department of Information
Portugal	Local registration offices	Direccão Geral de Registos e Notariado, Ministério de Justiça	Instituto Nacional de Estatística, Ministério de Planejamento e Administração Territorial
Romania	Municipal, city, and village councils	None	Direcţia Centrala de Statistica
Russia	Municipal offices	...	State Committee on Statistics
San Marino	...	...	...
Scotland	Municipal offices	General Register Office of Births, Deaths, and Marriages	General Register Office of Births, Deaths, and Marriages
Slovakia	Municipal offices	Ministry of Interior	Statistics Office, Department of Social Statistics and Demography
Slovenia	Municipal offices	Municipal Registrar's Office, Ministry of Interior	Statistical Office
Spain	Municipal offices	Dirección General de los Registros y del Notariado, Ministerio de Justicia e Interior	Instituto Nacional de Estadística, Ministerio de Economía y Hacienda
Sweden	Parish Civil Registration Office	National Tax Board, Ministry of Finance	Statistics Sweden, Ministry of Finance
Switzerland	Municipal offices	Federal Civil Registration Office, Federal Department of Justice and Police	Federal Statistical Office, Department of Interior

COUNTRY	CIVIL REGISTRATION ADMINISTRATION		NATIONAL VITAL STATISTICS OFFICE
	Subnational	National	
Yugoslavia	Local registrar, Office of the Secretariat for Internal Affairs	Federal Secretariat for Internal Affairs	Federal Statistical Office
Oceania			
American Samoa	...	...	...
Australia	State Registry of Births, Deaths, and Marriages	None	Bureau of Statistics
Cook Islands	Island Registry	Births and Deaths Registry, Department of Justice	Statistics Office
Fiji	Civil Registry, District Administration	Office of the Registrar General, Office of the Attorney General	Bureau of Statistics, Ministry of Finance
French Polynesia	Mairies	...	...
Guam	Government offices	Office of Vital Statistics, Department of Public Health and Social Services	Office of Vital Statistics, Department of Public Health and Social Services
Kiribati	Local government offices	Registrar General's Office, Ministry of Finance	Statistics Office, Ministry of Finance
Nauru	...	...	...
New Caledonia	...	...	...
New Zealand	Municipal offices, District Court	Office of the Registrar General, Department of Justice	Statistics New Zealand
Niue	Local registration offices	Registrar of Births, Deaths, and Marriages, Department of Justice, Land and Survey	Statistics Unit, Department of Planning and Development
Papua New Guinea	None	Civil Registration Service, Department of Religion, Home Affairs, and Youth	National Statistical Office

COUNTRY	CIVIL REGISTRATION ADMINISTRATION		NATIONAL VITAL STATISTICS OFFICE
	Subnational	National	
Solomon Islands	None	Ministry of Home Affairs	Statistics Division, Ministry of Finance and Economic Planning
Tonga	Office of the Magistrate, Government representative (outer islands)	Registrar General's Office, Ministry of Justice	Vital Statistics Division, Ministry of Justice
Tuvalu	Health centers	Medical Division, Ministry of Health, Education, and Community Affairs	Ministry of Health, Education, and Community Affairs
Vanuatu	...	Civil Registration Office, Health Department	Statistics Office, National Planning and Statistics Office
Wallis and Futuna	...	...	...
Western Samoa	Registrar in Apia, Government representatives	Births, Deaths, and Marriages Registration Office	Department of Statistics

... Information not available.

Appendix B. Estimated Completeness of Birth and Death Registration: Countries by Region

Country	Registration completeness (percent) Births	Deaths	Country	Registration completeness (percent) Births	Deaths
AFRICA					
Algeria[1]	C	U	Mali[2]	U	U
Angola[1]	U	U	Mauritania[2]	U	U
Benin[2]	U	U	Mauritius	100	100
Botswana[2]	U	U	Morocco	82	20
Burkina Faso[2]	U	U	Mozambique[2]	U	U
Burundi[2]	U	U	Namibia	...	...
Cameroon	85	30	Niger[2]	U	U
Cape Verde	C	C	Nigeria[2]	U	U
Central African Republic	U	U	Réunion	C	C
Chad[1]	U	U	Rwanda	51	51
Comoros[2]	U	U	Saint Helena[2]	C	C
Congo	74	41	São Tome and Principe	C	C
Djibouti[1]	U	U	Senegal	54	39
Egypt	100	100	Seychelles	100	100
Equatorial Guinea	53	58	Sierra Leone[2]	U	U
Ethiopia[2]	U	U	Somalia	0	0
Gabon	...	...	South Africa	64	60
Gambia, The	50	10	Sudan	25	5
Ghana	45	20	Swaziland[2]	23	26
Guinea[2]	U	U	Tanzania	U	U
Guinea-Bissau	U	U	Togo	80	15
Ivory Coast	...	...	Tunisia[1]	C	U
Kenya[2]	U	U	Uganda	35	25
Lesotho	45	20	Western Sahara[2]	U	U
Liberia	35	12	Zaire[2]	U	U
Libya	90	62	Zambia[2]	15	10
Madagascar[1]	U	U	Zimbabwe[2]	U	U
Malawi	...	...			
NORTH AMERICA					
Anguilla	C	C	Canada	100	100
Antigua and Barbuda	C	C	Cayman Islands	100	100
Bahamas, The	72	97	Costa Rica	97	95
Barbados	85	80	Cuba	100	100
Belize[2]	U	U	Dominica[2]	C	C
Bermuda	100	99	Dominican Rep.	35	5
British Virgin Is.[2]	C	C	El Salvador[2]	C	C
			Grenada	94	90

Country	Registration completeness (percent) Births	Deaths
NORTH AMERICA (continued)		
Guadeloupe[2]	C	C
Guatemala	95	90
Haiti	...	...
Honduras	U	U
Jamaica	90	90
Martinique[2]	C	C
Mexico	96	89
Montserrat	100	100
Netherlands Antilles[2]	C	C
Nicaragua	80	40
Panama	95	75
SOUTH AMERICA		
Argentina	98	100
Bolivia	U	U
Brazil	75	75
Chile	100	100
Colombia	90	98
Ecuador	15	22
French Guiana	...	...
ASIA		
Afghanistan	...	...
Armenia	100	100
Azerbaijan	99	28
Bahrain[2]	U	U
Bangladesh	U	U
Brunei[2]	C	C
China	90	90
Cyprus	85	85
Georgia[2]	C	C
Hong Kong	100	100
India	47	54
Indonesia	...	...
Iran[2]	U	U
Iraq[2]	U	U
Israel	100	100
Japan	100	100

Country	Registration completeness (percent) Births	Deaths
Saint Kitts and Nevis	100	100
Saint Lucia	100	100
Saint Pierre and Miquelon[2]	C	C
Saint Vincent and the Grenadines	99	97
Trinidad and Tobago	98	100
Turks and Caicos Islands[2]	C	C
United States	99	99
Virgin Islands	C	C
Guyana	81	86
Paraguay	27	48
Peru	88	80
Suriname	95	95
Uruguay	95	100
Venezuela	100	100
Jordan	95	60
Kampuchea	...	...
Kazakhstan[2]	C	C
Kuwait	C	C
Kyrgyzstan	C	C
Laos	...	...
Lebanon	U	U
Macau	100	100
Malaysia	93	74
Maldives[2]	C	C
Mongolia	100	100
Myanmar	90	90
Nepal	24	9
Oman	...	...
Pakistan	35	35
Philippines	85	73

Country	Registration completeness (percent) Births	Deaths
ASIA (continued)		
Qatar	95	95
Saudi Arabia	...	...
Singapore	100	100
South Korea	95	95
Sri Lanka	99	94
Syria	88	54
Tajikistan	98	84
EUROPE		
Albania[2]	C	C
Andorra	...	...
Austria	100	100
Belarus	100	100
Belgium	100	100
Bosnia-Herzegovina	C	C
Bulgaria[2]	C	C
Channel Islands[2]	C	C
Croatia[2]	C	C
Czech Republic	100	100
Denmark	100	100
England and Wales	100	100
Estonia	C	C
Faroe Islands	100	100
Finland	100	100
France	100	100
Germany	100	100
Gibraltar	100	100
Greece	99	99
Hungary	100	100
Iceland	100	100
Ireland	100	100
Isle of Man	100	100
Italy	100	100
Latvia[2]	C	C
Liechtenstein[2]	C	U
Lithuania	100	100
Luxembourg	100	100
Macedonia	C	C
Malta	100	100
Moldova	...	...
Monaco[2]	C	U
Netherlands	100	100
Norway	100	100
Poland	100	100
Portugal	85	99
Romania	100	100
Russia	C	C
San Marino[2]	C	C
Scotland[2]	C	C
Slovakia	100	100
Slovenia	100	100
Spain[2]	C	C
Sweden	100	100
Switzerland	100	100
Yugoslavia	100	100

OCEANIA

American Samoa[2]	C	C	New Zealand	100	100
Australia	99	99	Niue	100	100
Cook Islands	94	98	Papua New Guinea	...	...
Fiji	95	97	Solomon Islands	75	75
French Polynesia[2]	U	U	Tonga	95	90
Guam	98	98	Tuvalu	26	9
Kiribati	70	60	Vanuatu	40	30
Marshall Islands	C	C	Wallis and Futuna	...	...
Nauru[2]	C	C	Western Samoa[2]	U	U
New Caledonia[2]	C	C			

... Information not available.
C Registration completeness is estimated to be at least 90 percent.
U Registration completeness is estimated to be under 90 percent.

[1] T.J. Makannah, Methods and Problems of Civil Registration Practices and Vital Statistics Collection in Africa, IIVRS Technical Papers, No. 16, pp. 17–18, July 1981.

[2] United Nations, *Population and Vital Statistics Report*, Statistical Papers, Series A, Vol. XLVII, No. 4, October 1995.

SOME OBSERVATIONS ON CIVIL REGISTRATION IN FRENCH-SPEAKING AFRICA[1]

Michel François

Introduction

This article traces the development of civil registration in the Francophone countries of Africa and gives an account of the major problems facing these countries. It suggests that priority be given to the improvement of civil registration for administrative and demographic purposes, and that the project be approached with realism in its task of making civil registration a part of the national tradition.

Basic principle of vital registration

The countries of black Francophone Africa generally have available three administrative sources of information on their population: the administrative census to enumerate certain population types (taxable persons, subjects, voters); the register of external migratory movements to enumerate persons who enter and leave the national territory; and vital registration to identify and specify the administrative status of each individual. If these three procedures functioned normally, every country would be able, at any time t, to know the actual size of its population in relation to an earlier estimate made at time t_0:

$$P_t = P_{t0} + (B–D) + (I–E)$$

where:

P_t is the population at time t;
P_{t0} is the population at time t_0;
B–D is the crude natural increase (births minus deaths) for the period t to t_0; and
I–E is the migratory balance (immigrants minus emigrants) for the period t to t_0.

But, even today, none of the three procedures is generally able to furnish the necessary information for the annual calculation of the population size. Population at time t_0 is usually obtained as a result of crude, costly, and infrequent operations (general population censuses) available to substitute for the administrative census; vital registration, often defective and incomplete, does not furnish annual crude natural increase; and international migration is, in general, poorly known.

In countries where vital registration functions normally, processing of the data is of interest especially to demographers to establish parameters to measure fertility, mortality and nuptiality. In other countries, censuses and demographic surveys are the only sources of information on births and deaths, and they do not provide current data.

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[1]This article was abstracted from IIVRS Technical Paper No. 39, February 1990.

Vital Registration Situation in the Countries of Black Africa

Modern vital registration was introduced by the colonizers, most often in the 19th or early 20th century. At first, its objectives were in direct relation to the needs of the colonial government, that is, they hardly concerned the African population, at least outside the urban centers.

In 1959, official vital registration in Francophone Africa yielded an incomplete registration of births and a totally unusable registration of deaths in both urban and rural areas. In 1965, the reporting centers were unequally visited, perhaps satisfactorily in some large agglomerations—mainly for births—but most often sporadically in rural areas. By 1970, the system had improved, but mainly in the large agglomerations (in Senegal, for example, coverage is estimated at 5 percent in rural areas but is almost complete in Dakar). At the national level, coverage in several countries is estimated at 50 percent for births, 30 percent for deaths, and 10 percent for marriages. Beyond the fact that these estimates have practically never been verified, such national averages mask very large disparities among areas or regions within countries.

To our knowledge, two countries are exceptions: Mauritius, where the first important regulation establishing vital registration was by royal ordinance in April 1667, and Madagascar, where vital registration was established by royal decree in July 1878. Currently, in Mauritius, coverage is satisfactory for births and deaths; in Madagascar, national coverage approaches 80 percent for births and exceeds 50 percent for deaths.

In 1970, of 16 Francophone countries of West and Central Africa, only seven published any vital registration statistics in their Bulletin, and these were limited to distributions by age and sex.

The only African countries having complete registration[2] are Egypt and six small island nations or territories (Cape Verde, Mauritius, Réunion, Saint Helena, Sáo Tome, and Seychelles), or less than a tenth of the total population of the African continent. Therefore, one might ask whether the necessary conditions for the proper operation of vital registration are present in many countries and even whether all countries really are concerned about the development of a vital registration system.

The general secretariat of the Organisation Commune Africaine Malgache et Mauricienne published a study on this subject in 1974 entitled, "The Situation of Vital Registration in the Countries of OCAM."[3] The study reported that initial legislative codes for vital registration were established as early as 1667 in Mauritius and as recently as 1963 in Rwanda. Most codes have been modified over time with a new feature requiring a unique and obligatory vital registration for everyone at the national level. These new codes regulate vital registration and specify the events that are to be captured, often only births, deaths, and marriages.

Generally, vital registration appears to be an institution with both social and legal features. Because of that, guardianship is almost always taken up by the Department of the Interior for administrative management, with legal authority under the responsibility of the Justice Department to confer authenticity on the vital registration records. The Statistical Office is rarely called upon for vital registration, *a fortiori* for processing of the registrations.

The OCAM study underscores the huge disparities that can exist among and within countries with regard to the number of vital registration centers and to the numerical size of the populations served by the centers and the geographic area covered. The registrar, who has administrative

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[2]The United Nations considers as "complete" a registration system in which the rate of underreporting is officially under 10 percent.

[3]OCAM in 1974: Cameroon, Central African Republic, Chad, Dahomey (now Benin), Gabon, Côte d'Ivoire, Madagascar, Mauritius, Niger, Rwanda, Senegal, Togo, and Upper Volta (now Burkina Faso).

responsibility for the records, is usually the local representative of the central office. Nevertheless, enforcement is the duty of agents who are also responsible for numerous other tasks, often more demanding ones than vital registration. Training usually takes place on the job.

Two systems of registration are practiced: a sedentary vital registration in most countries; or a sedentary/itinerant arrangement in some others, with or without use of a village record book. It appears that where the method is adapted to the area, sedentary in urban areas, sedentary and itinerant in rural areas, the results are relatively better.

For all the countries studied by OCAM, five types of principal documents were identified for the inscription and registration of vital events:

- certificates (documents prepared prior to establishing a record);
- records (single-sheet or multiple-entry registers, eventually existing in several copies);
- duplicates, copies, sworn affidavits;
- summary statements of the records drawn up in a center and/or indexes of the records;
- various other documents (burial permits, family records).

The time limits for reporting set by law attempt to strengthen the obligation to report. They vary by country.

Usually, registration of all vital events is free of charge. However, registration taxes do exist, not always officially, and these may vary in both cases from one region to another within a country.

The OCAM study shows that the development of vital registration encounters four categories of obstacles:

- the administrative system;
- the staff;
- the network of transmission;
- almost always, an insufficient motivation of the authorities and of the population.

The assessment of OCAM thus is not optimistic.

Obstacles and Observation Difficulties

The government

In many countries, the government considers other tasks more important than vital registration, and thus it is not motivated to take the necessary measures to improve it. This attitude often provides an easy alibi for putting the responsibility for the mediocrity of the institution back on the informants. If, "tomorrow," all vital events were reported on time, in most cases the vital registration staff would be hard put to register all the events.

The question to be asked, then, is this: Why bother? The African reality points out that there are several possible "necessities" for a vital registration system:

- social necessity (the proof of the existence of an individual);
- purely administrative necessity;
- fiscal necessity;
- planning necessity;
- statistical necessity.

None of these seem to be well understood in most countries, since the governments are satisfied with short-term solutions. Administrative censuses—though of very uneven quality—often seem to satisfy the principal need for rough estimates of global trends of a population or for a general estimate of the per capita tax base, where it exists. Statisticians and planners in certain sectors—public health in particular—are the most sensitive to the importance of vital registration.

For ministries such as Planning, Development, Economy, and City Planning, the demand for demographic data is satisfied by means of various studies, either direct (ad hoc surveys), indirect (cross-checking, remote sensing), or secondary (more refined processing of a census, for example), because a national system of vital registration is difficult to establish in terms of both financial and human resources and thus is considered outside the needs expressed by the ministers. The time factor is often wrongly brought up as the major obstacle because, when resources are lacking, only time will permit a favorable outcome.

Legislation

Current legislation regulating vital registration in Africa is not, for the most part, adapted to reality, but that is not what impedes a system from functioning. Whatever the legislation, the system works if someone who is motivated takes charge of it. If the principle of an adapted national vital registration is acknowledged, before attempting any reform the political authority should carry out an in-depth study of the customary law still in effect and its impact on the events pertinent to vital registration. Marriages, kinship ties and alliances are good subjects to explore; births, with respect to the time limits for reporting (which, currently, are often too short in traditional circles in relation to local customs), are another. It is also necessary to convince the legal writers to be less fastidious about form; it is not necessary for the records to be too detailed. Finally, to reform the codes, it is necessary to set up a real collaboration among the principal departments concerned: Justice, Interior, and Statistics.

The registration system

All the studies undertaken on the subject underscore the weaknesses of the registration system, especially in rural areas. The number of centers is insufficient, procedures are too complicated and controls nonexistent. The studies also underscore the extreme isolation in which each center vegetates with the absence of supervision. The sedentary nature of the centers, the marginalized activity of vital registration in relation to other administrative responsibilities, a renovation of often deficient registers, the nonpreservation of files, the need for a client to return several times before receiving an official paper recording his report, and the scale of official (and unofficial) fees are so many additional obstacles.

In industrialized countries, the only document proving the existence or the death of a person is a medical report; there is no vital registration record without the medical record furnished by the doctor. In Africa, it seems that medical units are the best collectors of information on births and deaths and have the best infrastructure; moreover, they are generally the most esteemed. Their coverage rate, however, is often quite inadequate, especially in rural areas.

The staff

It is certain that many vital registration centers in Africa do not have a qualified staff. Recruitment is deficient and training takes place only on the job. The obstacles of deficient recruitment standard and training would be overcome more easily with "simplified" registration,

with the establishment of just a proper record and a minimum of data processing. In addition, size of staff is insufficient, more because of the officials' other responsibilities than of their number. To agents occupied with other "more engrossing" tasks, often without clear and precise instruction for filling in the records, establishing summary registers, transmitting them to the supervisor, and receiving informants, it becomes illusory to explain that their work is important and of national usefulness, and even more so when the pay and status of the employee are absurdly low.

The population

Many people live without an official record to sanction their birth or their marriage. The society knows their kinship and their alliances and customarily takes them into account when it is a matter of choosing a spouse, of paternity, or of distributing the estate of the deceased. But people move, and for that it is necessary to own a document that vouches for one's identity. A sworn affidavit can be established when the child's education begins if it is required. But, in certain cases, the availability of a sworn affidavit has become one of the major obstacles to the development of vital registration. Certain procedures for acquiring it constitute a large obstacle to the awareness of the population of the value of vital registration, of the duty, for example, of parents to declare the birth of an infant. In many countries, no campaign of sensitization and of information concerning the value and utility of vital registration is undertaken. It is here that education can play a major role. It is necessary to free the population from its fear of the system, a fear which arose in part from certain colonial practices.

Difficulties of reporting

Certain difficulties in reporting can be mentioned here concerning:

- the identification of an individual and the question of names;
- marriage;
- the reporting of deaths and causes of death; and
- civil status and migration.

So that an individual can be identified, he should have a well-defined name that he will keep for life and which is known both to the government and to private persons with whom he deals. The rules for passing on the name should be well defined. The problem of names is not frequent, but one must be able to identify it when it exists. Sometimes in Africa a person may have an official or public name and other variant names according to the speaker. A name can also vary in time and space, often to reflect changes in social status or change of group.

Registration of marriages, renunciations, and divorces pose an extremely complex problem in black Africa because of a large conjugal variability in certain population groups and the diversity and confusion of customs, traditions, and religions. These problems should be approached by a study of customary law in relation to a system of vital registration, especially to clearly define the situations encountered.

In the case of deaths, a person may be interested in reporting a death to remove the deceased from the tax rolls and cut off the charge to the village. One may also be interested in *not* reporting a death for reasons of pension or retirement, and cases of apparently exceptional longevity are thus found in Africa, as elsewhere. Causes of death are an important element in Africa, and vital registration could play a role in recording them.

Some countries have established a population register with obligatory reporting of changes of residence, which can pose problems in terms of individual and democratic freedom. Although this is usually not the case in Africa, a population register is not desirable under certain political regimes.

General Principles and Characteristics of a System of Registration and Vital Statistics in Africa

Frame of reference

A system of registration and vital statistics has two complementary bases: The first is the obligatory, continuous, and permanent reporting of the principal vital events—births, deaths, marriages—and of their characteristics, allowing the establishment of official documents conforming to current legislation, destined to furnish proof of the event, and called vital registration records. The records are written up in registers devised especially for each type of event. The second is the establishment, at the time of registration of vital events, of a statistical bulletin presenting the basic relevant characteristics of the events themselves and of the persons to whom they pertain, including the transmission of these bulletins, their assembly and their processing for the elaboration, analysis, evaluation, presentation and distribution of the vital statistics gathered.[4]

The administrative system

Vital registration depends administratively on the tutelage ministry, usually the Ministry of the Interior; and legally on the Ministry of Justice, which confers authenticity on each record by the numbering and initialing of the registers. The National Statistical Office processes and distributes the vital statistics. The creation of a national technical organization seems to be necessary to ensure the required coordination between the ministries; to ensure the responsibility for all aspects of the organization, administration, and operation of vital registration; and to satisfy one of the main conditions of the undertaking—the continuity of the operation until the perpetuity of the system is assured and national coverage is satisfactory. But it is not by creating this organization that the problem of vital registration is resolved, for it is only a tool. In a large country, there is also a further need for decentralization at the regional level.

The staff

The registrar is the representative of the public authority. He is trained to guarantee the execution of the law and ensure the transmission of the data. He is assisted in his task by the operational agents who have a particular status and who, like him, have received theoretical and practical training to ensure the continuity and permanence of registration.

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[4]The establishment of a statistical bulletin may be the objective of a second phase in the establishment of the system, but from the beginning the registration necessary to the establishment of the record should have a dual legal and statistical role.

Registration

The law designates in a precise manner the personnel, administration, and authority required to report a vital event to the qualified authorities, the place where the declaration should take place, and the time limits set for registration. The law likewise designates the form and content of the records and the registers, as well as their number and their use for statistical purposes (summary statements or statistical bulletins).

Controls

The justice authorities oversee the enforcement of the law. The government ensures the management controls (buildings, property, materials, personnel, equipment, documents, files). The control of transmissions (copies, receipts, time limits) and the editing of statistics (processing stages, coverage) are also essential parts of the system.

Remarks

The raw data collected in the field are from the start rudimentary: the existence of the event (birth or death) and a rather limited minimum number of characteristics, the accuracy of which depends little, if at all, on the qualifications of the person who records them. Yet, the data have meaning only if the passing on of information is assured and if one gives the people reasons to provide the information (administrative and statistical reasons are rarely convincing to the villagers). The village committee originated from this concept to integrate the system into a decentralized structure.

The problem still remains of how to link the reporting posts with the registration center, convert the declaration and registration into a vital record, and get it back to the informant. To link the collection system to the institution, that is, a statistical technique to an administrative obligation, is the most difficult obstacle to overcome. It can be overcome in several steps in rural areas and can be dealt with directly in urban areas.

The Difficult Vital Registration Experiment in UDEAC

So as not to confine ourselves to generalities, we have chosen to present as an example the approach of five countries of UDEAC[5] to develop a strategy to improve vital registration.

Point of departure

Starting out, the four countries of UDEAC found a more or less comparable situation in the demographic knowledge of their populations, which can be characterized as follows:

- insufficiency of official administrative procedures (administrative census and vital registration);

[5]Union Douanière et Economique de l'Afrique Centrale (UDEAC) comprised four countries (Cameroon, Central African Republic, Congo, and Gabon), to which Equatorial Guinea was added later. With regard to the demographic projects, Chad was added to the group as a fifth participant (UDEAC-Chad).

- too great an expense for a periodic general census;

- lack of continuity in the effort for a better demographic knowledge in spite of some good classical or experimental surveys, the latter often limited to a single subject.

With this beginning, the Council of the Chiefs of State adopted on 18 December 1970 (in association with Chad) a common program of observation of demographic events to be carried out over a period of 10 years.[6] The Council quickly realized the need for a more precise aspect of the program, a necessary complement to the censuses and surveys, called system of registration and vital statistics, and the general secretariat of UDEAC proposed a conference on continuous observation and vital registration, which was held in Libreville, Gabon in 1974.

Objectives of the project

Why continuous observation and vital registration? After the adoption of the initial program in 1970, two trends were delineated within UDEAC:

- the need to have available as soon as possible data on demographic change (multiround surveys or continuous observation); vital registration was another field to study and deal with in the long term;

- the need for a rapid improvement in the system of registration and vital statistics, even to the detriment of an immediate knowledge of data on change at the national level.

These positions resulted in different ideas worked out in the countries:

- the improvement of vital registration at the national level would require a long period of time—one or several generations; during this long period of time, could censuses and surveys also be financed?

- the pilot continuous observation operations, initial operations of the program, were more or less a failure, depending on the country.[7]

The Libreville conference posed the following question: "How to have both demographic data and the improvement of vital registration?" The general secretariat of UDEAC proposed a response 4 years later in 1978, at the time of an ad hoc commission on vital registration at Libreville. This proposition was the result of an in-depth study of CREP[8] on all the work carried out in the region and elsewhere.

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[6]In 1970, it was not yet a question of vital registration but of an institution to develop it.

[7]Incomplete operations, resources insufficient or not respected, evaluations planned but not carried out, experiments with village record-books abandoned or not carried out, insufficient motivation at all levels, lack of support from outside organizations.

[8]CREP is the Centre Régional d'Etude de la Population.

The CREP Project

Emphasizing the operational aspect, that is, the administrative side of vital registration, the general secretariat of UDEAC proposed a project for the improvement of the system of registration and statistics of vital events as a basis for study, not as a model, in order to plan a national strategy, followed by a national project in each country, adapted to local conditions. The CREP Project comprises four principal studies.

- The requirement for preliminary studies:

  — an exact inventory of existing centers and their personnel; evaluation of the budget of vital registration;

  — detailed cartography for an optimal administrative subdivision;

  — study of a consistent, rapid, and realistic network for transmitting the data;

  — sensitization of the local authorities;

  — in-depth analysis of existing legislative codes on vital registration and of customary laws and traditions;

  — evaluation of the quality of the forms used and of their eventual simplification;

  — study of the role and the necessary and sufficient tasks for each agent in the hierarchy.

- Study of the reporting offices and of the registers to be used:

  — increase in rural offices;
  — register in triplicate—original, copy for the central office, and receipt.

- Study of the theoretical and practical training of operational personnel:

  — training of trainers;

  — manual of basic training (a collaboration of CEA/OCAM/UDEAC);

  — operations guide for vital registration agents (collaboration of CEA/OCAM/UDEAC);

  — a study of indirect sensitivity training for vital registration—law faculty, national school of administration, school of judges, faculty of medicine, schools for nurses, paramedics, social scientists, teachers, etc.; civic instruction in all institutions of learning, in the army, etc.;

  — periodic retraining of staff.

- Study of the financial strategy of national projects:

  — how to free up funds and better distribute existing funds;
  — how to restrict outside financial aid;
  — how to relay outside financial aid if it occurs.

This project—the studies carried out in the framework of the project—comes under three principal ideas:

- a political will of the countries expressed by a continuing moral and financial commitment vis-à-vis the national project;

- the registration of births and deaths satisfies administrative and statistical needs—it is necessary to place at the disposition of the population an easily accessible administrative system, operating properly and served by a competent staff;

- it is necessary to work in the short term if one desires eventually to find a national solution in the long term. In other words, the national project should be put into place in one region, even in a part of a region in rural areas, and in just one agglomeration in urban areas. This objective permits a maximum reduction in cost, for obvious reasons of existing resources, but also allows one to "limit the damage" in case of failure.[9]

Thus, the project takes the following position: the improvement of vital registration has priority and has dual objectives, administrative and demographic. However, there remain three other possible options:

- obtainment of vital statistics data does not have high priority and the existing system should be left as best as possible in the hope that it will improve with time;

- rapid obtainment of vital statistics data does have high priority and data should be obtained by means other than vital registration;

- rapid obtainment of vital statistics data and the improvement of vital registration both have high priority; thus, both a demographic survey and actions to improve vital registration are needed.

Simplified presentation of the working model

On the one hand, there is an important effort to ruralize the system with collection at two levels:

- the reporting office;
- the vital registration center.

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[9]In 1975, IDRC (Canada) estimated the cost of 3 years of operation among 600,000 inhabitants, of which 100,000 in urban areas, at 55 million FCFA. This population corresponds to about 45,000 births per year. After the first 3 years, cost of the subsequent phases would be, also according to IDRC, from 30 to 40 percent less.

On the other hand, there is a national Department of Vital Registration and a Department of Statistics.

From one end to the other in the chain, there are persons to convince, including the operations staff who must also be trained, checked on, and retrained.

The reporting office

The idea is to set up an office for a village or a group of villages—it is a question of the size of the corresponding population—that has available a medical, social, or rural infrastructure or in which one can create a village committee. In fact, it is doubtless less difficult to attack the problem at the elementary collective level than to think only in terms of individuals.

It is also a problem of density (low density but large distances to travel), of the nature of the settlement (grouped or dispersed), and of accessibility in all seasons.

A part-time vital registration agent with fixed remuneration has available only one reporting register, with triplicate copies—the original, the copy intended for the vital registration center, and the reporting receipt (which is not a record). This agent periodically submits the appropriate copy to the center, retrieves the completed records, and distributes them upon his return. He is under the control of the registrar at the vital registration center.

The vital registration center. The idea is to have a center in all the rural communes and urban divisions, operating full time. However, in regions of low administrative density, one can anticipate a larger number of vital registration centers than the number of rural communes. The center receives the declarations, retrieves them from the local offices, draws up the records, makes up the summary reports—or Statistical Bulletin—and transmits the information; it controls the local offices under its authority. It is under the control of the next higher administrative level and of the procurator of the lower court.

The national vital registration office. The central agency to be created, it is responsible for the organization, administration, and operation of vital registration. It has a department charged with sensitization programs.

The national statistical office. It processes the information that it receives and publishes the vital registration statistics. It ensures, together with the national vital registration office, the verification of the quality of the summaries, down to the reporting offices, and conducts periodic sample surveys to evaluate the coverage of the system.

The village record-book. A particular document prepared by CREP deals with village committees and record-books. It is the result of a thought process carried out during several years in the field and of an understanding of the area. It concerns rural areas.

It is probable that, in time, small rural villages will disappear to the benefit of larger villages having basic management and operational infrastructures—government, agriculture, health, markets, and vital registration. These basic infrastructures are possible if one utilizes the least expensive techniques supportable by the local budget, simple techniques that are easily controllable by a motivated local government. These techniques are thus the basis for the basic administrative infrastructure and a development approach that was put into place by the countries of UDEAC in the period 1970 to 1980—the village committee. Of course, active participation of the population is necessary for the creation and effective functioning of these committees, which prepare the eventual permanent administrative structures within the framework of integrated rural development. This willingness for community development was real in 1978 in UDEAC—success of the village health committees in the prefecture of Ouham in Central African Republic, and village committees established since 1974 in the Congo.

Concerning vital registration, one should return to the ideas of reporting offices and of village record-books in the desire to verify or recall that these have already worked elsewhere.[10] The village record-book is a memorandum, a written testimony of births and deaths; it can have a pedagogic value. But it is of use only if it is coherent, verified, and processed, and works only if it registers a minimum of information; a simplified reporting form for a birth, for example, might be as shown in Figure 1. Thus it is a basic register, but it can be made in triplicate as already discussed.

For the general secretariat of UDEAC, the components of a new system are to be determined according to the particular needs and conditions of each country. It would be interesting for the four countries to make known the situation of their vital registration today in relation to the approach to the problem proposed by the general secretariat between 1970 and 1980.

Name _____	Control stamp of vital registration register:
was born _____	
son, daughter of _____	
and of _____	No. (RECORD)
at _____	
_____	

Figure 1. Simplified Reporting Form for a Birth

Conditions Inherent to the Development of Vital Registration

Patience and time.

Certain specific requirements:

- Absence of social, religious, or ethnic discrimination
- Need, from the start, for a strong, centralized authority for the definition of concepts, the enforcement of the law and the institutions, and the utilization of resources
- Conviction on the part of managers regarding the utility of vital registration
- Public safety and adequate means of communication
- Adequate number of rural centers
- Adequate staffing in number and competence
- Definition and quality of registration that is free of charge
- Operational and rapid means of transmission of information
- Ensured data processing in a regular manner, with periodic publications
- An appropriate control system and a staff responsive to the controls

[10]The existence of a village record-book is not necessarily linked to the existence of a village committee, provided that the village has a capable person motivated to use it.

A program of sensitization and motivation of the population:

- Explain what vital registration is, what the records are used for
- Present information on the advantages of having records, and the disadvantages of not having them
- Motivate the reporting of events
- Familiarize the public with reporting procedures
- Present information on the government's efforts to improve vital registration
- Convince the public to cooperate
- Establish programs targeted by population type
- Utilize all means of communication
- Take into account the literacy rate of the targeted population

Five steps for adopting the idea of vital registration:

- Perception
- Interest
- Testing
- Evaluation
- Adoption

Conclusions

How does one engage the politician, who loves what can be seen, and seen rapidly, in an effort whose results he will not see? One must not impose vital registration but create the conditions of a dynamic, show the people little by little the value of it, until the demand comes from them. The role of the statistician and the demographer is thus to suggest, to prompt, to push the authorities to find the capability to conceive along with them this long and slow process of official, obligatory, continuous, and permanent registration of births and deaths, and then of other events, such as marriage, when the time comes. The statistician and the demographer must have patience and imagination, the principal traits of the organizations in which they work. They know that changes in a population are generally slow. They should think the same way about vital registration, being careful to assist in putting it in place and not utilizing it as if it were already complete. They should also look into one or more isolated or little-known centers where there has been good registration, perhaps for a number of years, to understand the reasons for their success. At the same time, if they have the means, they should also try to furnish demographic data that the "provisionally" deficient system cannot yet provide. On the other hand, one must discontinue those projects where recurrent expenditures—operation, continuity, growth—will not be carried out in a satisfactory manner.

Let us not be like the parents who do not report a birth and then discover happily, at the time their child enters school, the means to acquire an affidavit. Let us assist in the creation of the habit of reporting an event in order to create, with time, a tradition of vital registration.

URGENTLY NEEDED REFORMS IN CIVIL REGISTRATION IN ASIAN COUNTRIES[1]

International Institute for Vital Registration and Statistics

Introduction

There has been, for many years, universal recognition of the importance and need for the registration of vital events, namely, births, deaths, marriages and divorces. Virtually every country in the world has promulgated laws for establishing a national civil registration system for documenting juridical facts about vital events and to use these data for the compilation of vital statistics.

The individual vital records and the statistics derived therefrom play an essential role in various national programs in the industrialized countries. There is need for similar uses of vital records and statistics in the developing countries. Unfortunately, the civil registration and vital statistics functions in many countries have not received the necessary support and attention. As a result, the vital records and statistics are of limited use in social and economic developmental planning.

The purpose of this article is to outline the value and utility of vital records and statistics and to demonstrate to policymakers in countries of East Asia the need for providing the necessary organizational framework, adequate personnel, and funding for a modernized national civil registration and vital statistics system. The article briefly reviews the systems that exist and identifies the reasons for deficiencies in the systems. Finally, it suggests possible steps for improving civil registration and vital statistics.

Although births, adoptions, legitimations, deaths, stillbirths, marriages, and divorces come within the scope of vital events, only births (including stillbirths) and deaths are covered here. The demand is greatest for statistical information on births and deaths as components of population growth. Also, the problem of improving birth and death registration is more complex because it involves the motivation of the general public. All the other vital events result from a legal proceeding such as marriage, divorce, adoption, or legitimation conducted by authorized officials. Establishing a registration system for marriages and divorces is different from establishing one for births and deaths and, in general, is much less complex.

Utility of Vital Records and Vital Statistics

The essential function of the civil registration system is to provide documentation of all vital events, that is, live births, fetal deaths, deaths, marriages, and divorces, and to maintain a permanent file of these records for legal purposes. Thus, the registration process records the civil status of individuals and defines the relationship between individuals in the family organization based on the following:

- The facts of a birth, from which a person's civil status and other rights and obligations originate.

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[1]This article is an edited version of a report prepared by a committee of Asia experts under the auspices of the IIVRS and the United Nations Economic and Social Commission for Asia and the Pacific. The original report was published as IIVRS Technical Paper No. 28, October 1986.

- The facts of a death, which extinguishes certain rights of the individual and creates inheritance rights and other obligations.

- The facts of a marriage, divorce, separation, adoption, or legitimation, which create, modify, or extinguish civil status or other rights and obligations.

The registration of vital events generates a record for the individual, and these records also serve as a basis for vital statistics. Both vital records and vital statistics have many benefits to the individual as well as to the state.

Importance of vital records to individuals

The United Nations Bill of Human Rights and the United Nations Declaration of Rights of the Child proclaim the right to citizenship, the right of children to a name and citizenship and to know of their parentage. A birth record provides proof of citizenship and family relationship. It also provides legal proof of age, dependency status, legitimacy status, and so forth, on which a wide variety of rights depend, particularly in regard to the exercise of civil functions, entitlement to family allowances, care of children, tax deductions, insurance benefits, education, property ownership and inheritance. The death record provides legal evidence for claims to inheritance of property, to insurance, to rights of surviving spouse to remarry, and to family allowances when death creates a financial need. Marriage and divorce records are the basis for claims involving the status of women, such as dependency and alimony allowances, tax deductions, provision and allocation of specific types of housing and other facilities that relate to a husband and his wife, including claims to a change in nationality on the basis of marriage. Divorce records have many legal uses including, in monogamous countries, the establishment of the right to remarry.

For the state, beneficial uses have been made of birth records in public health programs such as those relating to postnatal care of mother and child, premature baby care, the vaccination and immunization of children, and assistance to the physically handicapped. Information on cause of death recorded in individual death records has been used to spot unusual infections and epidemics in a community and to establish necessary control measures. Individual death records have also been used to clear files such as disease case registers, social security records, military service files, electoral rolls, and tax registers. The purging of files of dead individuals results in savings by increased efficiency in filing operations. In some instances, such as in electoral rolls, the elimination of dead individuals from the rolls will prevent fraudulent voting and other types of fraud.

For countries with population registers, it is essential that additions due to births and immigration, deletions due to deaths and emigration, and changes in personal characteristics such as occupation, marital status, and place of residence of registered individuals be incorporated into the register on a continuous basis. Vital records provide information on important components needed for updating population registers.

In countries where identity cards are issued, the birth record provides the basis for issuing new cards. Marriage and divorce records serve as proof of change in marital status. Finally, the death record flags cases where the cards that have been issued should be surrendered to prevent their misuse.

Usefulness of vital statistics

A civil registration system serves the primary purpose of providing evidentiary records to meet juridical and administrative needs. It serves this purpose uniquely inasmuch as neither a census nor statistical surveys can possibly provide the needed legal documents and the type of continuous statistical data available on vital records. With the development of a satisfactory civil registration system, countries now using sample surveys to obtain vital statistics may envisage a continuing reduction in expenditure on sample surveys resulting in considerable savings, while at the same time enjoying the benefits of having continuous data for every geographic subdivision of the country. However, apart from this primary purpose in relation to both individual and administrative needs, the civil registration system certainly has the ultimate aim of providing vital statistics based on data from vital records. If the system embraces the entire population of the country, it will be possible to provide data on a continuous basis for the country as a whole as well as for every political subdivision. However, the usefulness of such data depends on the completeness with which the vital events are registered and the accuracy and completeness with which the demographic and other information are recorded.

Historically, the earliest uses of vital statistics have been in the delineation of health problems and in measuring health progress. As components of population change, vital statistics are useful for measuring population growth and preparing population estimates between censuses and for making postcensal population projections. They are essential for the planning and evaluation of family planning programs and for demographic studies.

Population estimates and projections. The planning of almost any kind of governmental services requires the knowledge of the population and its distribution. Planning of public health programs, transportation facilities, agricultural production, production and distribution of commodities, and so on, cannot be done effectively without adequate population base figures. For social and economic planning, it is essential to base such plans on the probable size of the population and its composition at some future date. Plans for public projects requiring large capital outlays such as construction of school facilities, and urban development including water supply, sewage, and public utilities, need to be based on population projections. Without reasonably good population projections, the facilities may become inadequate before their time.

The all-important population figures may be obtained from population censuses. Because of their expense, national population censuses are not usually conducted more than once in every 10 years. During the intercensal years, population figures may be estimated using birth and death statistics. For the postcensal years, projections may be made of birth and death rates.

Public health programs. Mortality statistics have long been used to delineate the magnitude and distribution of major disease problems, and for planning and administration of public health programs to combat diseases. More recently, the World Health Organization has mobilized developing countries to participate in an international program of Health for All by the Year 2000. Specific goals were established for each country, expressed in terms of infant mortality rates. Evaluation of national programs to meet these goals requires adequate vital statistics, that is, data on infant deaths and on live births from which the infant deaths arose.

Family planning services. Current birth and death statistics provide measures of natural population growth, which is an important measure in the evaluation of family planning programs. Marriage rates and data on age at first marriage are indicators of future fertility, and current birth statistics by age of mother and parity also provide useful data for the conduct of family planning services.

The value and uses of the civil registration system and the vital records and vital statistics that flow therefrom are evident. Unfortunately, for most developing countries. it must be

recognized that serious deficiencies in the civil registration system exist that considerably reduce its utility. Major improvements are necessary if the system is to serve satisfactorily the purpose for which it was established.

Civil Registration and Vital Statistics in East Asia

A civil registration system was first established in the region in 1868 in Sri Lanka. By the end of the 1800s, births and deaths were also being registered in Japan, Hong Kong, Macau, India, and Bangladesh. Currently, as far as it is known, virtually every country in East Asia has made legal provisions for the registration of vital events and has designated agencies responsible for civil registration and for the compilation of national vital statistics.

Most countries in the region have had a civil registration system for more than 50 years. However, there has been little progress in the development of the registration system in many of these countries. At the present time, the civil registration systems of more than two-thirds of the countries in the region are still badly in need of major improvement. These are the countries that report that fewer than 90 percent of the births and deaths were registered, or that information on registration completeness is not available. In the latter instance, it would be fair to assume that registration completeness is below the acceptable level.

Although a law exists for the production of vital statistics, there is no agency designated to compile national vital statistics in Afghanistan. In Pakistan, the responsibility for the compilation of vital statistics lies in the Ministry of Health, Social Welfare, and Education, but summary reports were not being received for national tabulation purposes. In India, national estimates of fertility and mortality are being produced annually from sample registration surveys until such time as civil registration proves to be a satisfactory data source. For many of the other countries in the region, published vital statistics data are necessarily of dubious quality.

The organizational pattern of the civil registration and vital statistics systems in East Asia does not differ greatly from that of other parts of the world. There are a number of countries like Afghanistan, Bangladesh, Hong Kong, Macau, Malaysia, Singapore, and Sri Lanka where the local registration offices are under the direct control of the national registration office. On the other hand, in most of the countries, the local registration offices are a part of the local government administrative services not in the direct line of authority of the national registration office. Under this system, the local registrars may perform tasks other than registering vital events. The lack of direct control over local registration services by the national civil registration office and the number of other civil and legal functions competing for the attention of the local registrar make this organizational structure administratively difficult from the civil registration point of view. This situation may be further complicated in countries where the administrative organization is not the same in all the states or provinces, or in all local areas. In such cases, the national registration authority will have to work through more than one ministry or department to communicate with all the local officials.

In some countries such as Bangladesh and the People's Republic of China, the responsibility for both civil registration and vital statistics is in the same administration or organization from the national to the local levels. Presumably, this makes for a smoother operation. In other countries, cooperation and collaboration between two national agencies are required. This may be a problem because the legal requirements for information to be included in the registration document are relatively modest whereas the data needed for statistical purposes may be relatively extensive. To obtain complete registration and data of good quality on a timely basis for national vital statistics, it is essential that the registration and vital statistics agencies integrate and coordinate their activities.

The various patterns of civil registration and vital statistics that have evolved are of general interest, but they may not be of particular relevance to individual countries. For individual countries, the concern is whether or not their particular system provides an effective means of registration of vital events and whether or not vital statistics needed for national social and economic developmental programs can be produced. The current indications are that there are at least 16 countries in East Asia with an inadequate system of registration of births and/or deaths. They are:

Afghanistan
Bangladesh
Bhutan
Burma
India
Indonesia
Iran
Kampuchea
Laos
Malaysia (deaths)
Maldives
Nepal
Pakistan
Philippines
Thailand
Vietnam

One of the essential requirements of a civil registration system is the provision for permanent storage of vital records with proper safeguards to protect the records from loss or damage. All the 14 countries that responded to this question of permanent repository of records indicated that there were central files of records. Most of these files are located in the local and/or state registration offices. A few countries maintain a national file. On the other hand, more than half (8 out of 14) of the countries did not provide an alphabetical index to these records. This means that it would be difficult, if not impossible, to find a particular vital record on file in these countries without exact knowledge of the place and time of registration as distinct from the time and place of occurrence of the event. An alphabetical index to the vital records on file is essential to facilitate access to individual records for certification purposes.

The problem of storage and retrieval of individual vital records is an important service aspect of a registration office. However, without reasonably complete registration of vital events, it would not be possible to provide satisfactory service to the public in the certification of vital events even with an efficient record storage and retrieval system.

It seems clear that urgent reforms are needed in about two-thirds of the countries in East Asia for the registration system to adequately serve the purposes for which it exists, that is, the documentation of the occurrence of a vital event for individuals and the production of national vital statistics from these records. Also, for countries with a population register or a personal identity system, the integrity of such a system cannot be guaranteed without an adequate civil registration system for a continuous update by the deletion of deaths and the addition of new population with proof of age.

Without an adequate civil registration system, needed data for national planning for economic and social development are lacking. Most of the countries in the region are not in a position to meet their commitments to monitor infant mortality rates in connection with the WHO Program of Health for All by the Year 2000. Nor will they be able to evaluate the effectiveness of their efforts in achieving their stated goal by the year 2000. This is only one example of the problem facing these countries.

In the modern society of today, there is need for various kinds of data bases for the planning and administration of social and economic programs. Vital statistics that provide the essential components of population change will serve important uses in many national social and economic developmental programs. Simply put, the issue now is to identify the obstacles to the

improvement of civil registration and to introduce major reforms in the civil registration and vital statistics systems and programs so that usable vital statistics will become available in the near future.

Obstacles to the Improvement of Civil Registration

The impediments and obstacles to complete registration of vital events are considerable. Otherwise, all the countries of the world would have had the benefits of useful national vital statistics long ago. There are many reasons for the lack of development of national civil registration systems and for the incompleteness of registration of vital events. The more important of these are presented below, not necessarily in the order of their importance.

Inadequate legal basis

While legislation at the national or state level exists in virtually all the countries under consideration, there are deficiencies with respect to specific details such as failure to make registration of vital events compulsory for the entire population, impractical time limitations for compliance with registration laws, and the lack of provisions for handling delayed registration in the system of documentation. An important legal deficiency is the failure to provide for a clear central registration authority for the direction of the registration function throughout the country and the failure to monitor and supervise its performance.

Inadequate budgetary support

One of the main obstacles to the improvement of a civil registration system is the lack of awareness of the utility of vital records and statistics on the part of senior government officials. This lack of appreciation of the importance of civil registration and vital statistics has led to the comparatively low-priority status assigned to these functions. As a result, the civil registration and vital statistics systems in most countries of the region do not have sufficient budgetary support. This deficiency is reflected by the paucity of technically qualified personnel, the low status of local registration officials in the community, the poor state in which registration offices are maintained, and the inadequate manner in which registration documents are stored and preserved. In some areas, the registration function may suffer because of an inadequate supply of registration forms. An improvement of the system would depend on the recognition of its utility in the day-to-day work of government itself in the key sectors of civil rights, health, and associated socioeconomic activities.

Defects in administrative organization

The position of central authority is determined by the status that the registration law assigns to it. Generally speaking, it would be desirable to have one agency responsible at the national, state, and local levels, but quite often more than one agency is responsible at the field level. The latter situation exists because of the availability of staff, and different agencies may have to be brought into the system at the local level to avoid excessive staffing if a single agency were to be performing these duties exclusively.

Under existing conditions in most countries in the region, multiple types of registrars may have to be accepted, at least in the initial stages. Eventually, it would be desirable to ensure that the position of registrar be held by officials of the same hierarchy throughout the system in the

interest of better control, supervision, and management of vital records. A related problem relates to the local registrar, who is the key functionary in the system. Quite often, the registration of vital events may be only a part-time duty of the registrar, carried out along with other jobs assigned to him. Unfortunately, when multiple duties are assigned, registration of vital events often receives low priority. This situation results from both the low status conferred in the administrative structure on this functionary and the lack of appreciation of the importance of his role in the civil registration process or of the utility of the system.

Perception and attitudes towards civil registration

One of the major obstacles to the improvement of registration of vital events is the perception and attitude of the public and of the registrar with respect to the importance of registration of births and deaths. In many instances, citizens may not be aware of their legal responsibility in registering births and deaths. In others, the informant may not appreciate the utility or importance of the registration process. Then there are those who resist registration of vital events, especially of births, for superstitious reasons or with the notion of avoiding taxation or military conscription.

In most developing countries, there is little to motivate people to comply with registration laws. This lack of motivation is the major obstacle to improvement of registration completeness. Often it is attributable to the lack of recognition of the utility of the system in their daily lives. A requirement for documents relating to vital events for certain purposes such as school admission, if introduced over a reasonable period of time, would enhance the recognition of the system. This, in turn, would result in the improvement of the civil registration process.

Inaccessibility of local registration offices

The wide dispersion of the population and the remoteness of rural areas from population centers where the local registration offices are located are problems in many parts of the world. Coupled with the lack of public transportation, this dispersion presents a serious obstacle to registration of vital events. In some countries, such as Nepal with its mountainous terrain, it may not be feasible to provide local registration services for much of the population in remote areas. In such cases, mobile registration offices might be considered.

Strategy for Improvement of Civil Registration

The essential elements of a strategy for the improvement of civil registration are the formulation of a plan for national reform, the assessment of obstacles to the improvement of civil registration, and the mobilization and use of the resources available at various levels of government to carry out the necessary activities according to an integrated plan for reform.

Formulation of a plan for national reform

The existing national civil registration and vital statistics systems have a variety of organizational patterns. In some, the civil registration and vital statistics responsibilities are grouped in a single ministry, in others the functions are distributed among several ministries. There are also differences in the stage of technical and administrative development and in the efficiency of the systems. Adding to the complexity of the situation are variations in the distribution of the population, the difficulty of travel and communication, the level of literacy and awareness of the population of the need for, and benefits of, registration of vital events. Because of the

country-to-country variations in conditions, it is not useful to propose one civil registration and vital statistics system as an ideal worldwide model or as a model for a particular region. Yet much can be learned by examining the systems of various countries; much can be learned by the study of general recommendations of international agencies and committees; and much can be gained from multilateral or bilateral technical assistance. However, in the end, each country must develop its own plan for civil registration and vital statistics development and improvement.

Regardless of the organizational structure of the civil registration and vital statistics system in a country, there are a variety of ministries or agencies that have responsibilities or interests in vital records and/or vital statistics. These agencies may be in ministeries such as Home, Interior, Planning, Justice, Health, Finance and Economics, and so on, which are concerned with governmental functions dealing with personal identification, population registration, migration control, civil rights, vital statistics, population studies, public health, and so forth. Therefore, if a country is to develop a sound plan for civil registration and vital statistics improvement, the interests and concerns of a number of agencies must be considered. To accomplish this feat, it is recommended that plans for reform of the civil registration and vital statistics system be developed by a multiagency national commission. For such a commission to be effective, it must be supported at the highest governmental level. Ideally, this support might come from a presidential commission or a cabinet committee. As a minimum, it should be made apparent that the committee or commission has strong high-level backing and that any reasonable proposals for the reform of the national civil registration and vital statistics systems would receive favorable consideration.

As the first step, the commission should develop a unified overall plan for the revision of the civil registration and vital statistics systems. This plan[2] should do the following:

1. State the objectives of the civil registration and vital statistics systems, including goals for development and improvement.
2. Designate national agencies responsible for civil registration and vital statistics. Preferably, a single agency should take charge of both civil registration and vital statistics at national, regional, state, and local levels. The possibility of identifying a single agency at all levels should be explored. Where no national agency responsible for civil registration exists, such a ministerial responsibility should be established for the nationwide coordination of civil registration.
3. Establish means of coordinating civil registration and vital statistics, possibly through a permanent or ad hoc coordinating committee.
4. Review the authority and responsibility of national and subnational (regional or district, provincial, and local) registration offices in the administrative chain involved in the flow of registration records and make any needed organizational and procedural changes.
5. Make a comprehensive review of existing laws on civil registration and update such laws for conformity with international recommendations on registration and statistical procedures; and give legislative authority and responsibility to the various agencies involved. The laws should be as simple and general as possible and yet enable the agencies to function efficiently. One way to accomplish this is to incorporate into the law the immutable provisions of registration and statistical procedures but write into regulations the administrative requirements that may be revised at a later date because of change in conditions. This use of regulations that have the same force as law is advantageous in that revisions may be made simply as an administrative procedure.

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[2]A list of some studies and steps that might be taken to improve civil registration and vital statistics may be found in the last section of this article.

6. Create awareness of the utility of the civil registration and vital statistics systems to society and to the individual so as to ensure their early establishment and full coverage in a reasonable time.

7. Start a program of methodological studies to test methods and procedures in one or two experimental areas before nationwide adoption.

8. Provide for a program of training of civil registration and vital statistics personnel, and of upgrading of positions consonant with the increase in responsibilities.

9. Include on the statistical side the establishment of an expanding national tabulation area for births and deaths. These areas should be comprised of geographic subdivisions of the country where registration coverage is deemed satisfactory and should form the basis for national statistics on births and deaths for analytical purposes until nationwide completeness of birth and death registration reaches an acceptable level.

10. Formulate a plan and a time table for achieving the goal of producing usable national vital statistics in a 10- to 15-year period. This plan should include all the aforementioned activities for improving civil registration and vital statistics and should focus on problems that have a realistic possibility of solution.

11. Outline the organization, staffing, and budget needed for the national reform of the civil registration and vital statistics systems and for the operation and maintenance of the systems.

Although technical assistance for limited developmental work may be available from agencies such as the United Nations Fund for Population Activities (UNFPA),[3] the responsibility and initiative for the improvement of the national civil registration and vital statistics system must rest on the country itself. Also, there must be a strong national commitment to push through the urgently needed reforms, and to give high-level support to the development of a national civil registration and vital statistics system. Without such a commitment, no significant progress can be expected in the development and improvement of the civil registration and vital statistics systems in the foreseeable future in most developing countries. Every country has an obligation to protect the birthright of its citizens by providing proper documentation of the vital events. Every country needs adequate national vital statistics for national social and economic planning. Governments are urged to make the policy decision that civil registration and vital statistics are essential for the achievement of national well-being.

Assessment of obstacles to improvement

There are many obstacles that need to be overcome to develop a satisfactory civil registration and vital statistics system. Some of the problems are not difficult to cope with, but others may be impossible to solve within the means available at the particular time. One of the reasons for the lack of progress in the development of civil registration in the various developing countries may lie in the attempt to tackle everything at once—the simple, the difficult, and the impossible problems.

In considering the elements of the long-range activities for improvement, the plan should focus on problems that have a realistic possibility of solution. The various obstacles to the improvement of civil registration and vital statistics may be classified according to how resistant or susceptible they are to solution. In such a classification, the obstacles may be considered in three broad groups: relatively intractable problems relating to geography and culture, problems

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[3]Editor's note: Now the United Nations Population Fund (UNFPA).

solvable but requiring additional funds and national or outside technical assistance, and immediately solvable problems.

Relatively intractable problems. This group of problems consists of a number of obstacles, many of which can be solved within the framework of long-range social and economic development but can hardly be solved by short-range actions taken within the civil registration system itself. In other words, the solutions lie outside the scope of changes that the registration organization itself can bring about. Some in this group of problems relate to the geography of the country and an uneven distribution of population. Here, problems of transportation and communication vastly complicate the operation of a civil registration system.

Closely related to this type of problem is the nature of the population. A predominantly rural, largely illiterate population may fail to comply with the laws or delay reporting the occurrence of a vital event because of a lack of motivation for registration. In extreme cases, there may exist a resistance to registration and a falsification of reported information. Also, there may be problems in communication in any educational effort to improve registration. The impact of such conditions may be ameliorated as social and economic conditions improve, but the overall solution is hardly within the domain of the civil registration system alone.

Problems solvable but requiring additional funds. There is a long list of problems whose solution is primarily a matter of adequate funds. This list includes the need for adequate staff, proper training, availability and distribution of essential forms and supplies, transport for supervisory or training staff, office space, modern record storage, document reproduction equipment, data processing facilities, printing facilities, and so on.

In contrast to the relatively intractable problems, most obstacles in this category could be eliminated quickly if adequate funds were available. It is difficult to estimate national expenditures for civil registration because the process is so intertwined with other regular governmental operations, but the lack of adequate funds in national budgets for specific registration needs is certainly an almost universal impediment to the improvement of the national civil registration systems.

Immediately solvable problems. This group of problems comprises obstacles that can be solved within the national domain with relatively small financial outlays. It includes inadequate legislation, inefficient organization, lack of coordination between the different elements of the civil registration and vital statistics systems and the question of priority to be given to the whole enterprise by the government. That is not to say that these problems are necessarily easy to solve. There are conflicting legal interests; there are questions of competing jurisdictional control; and there are other governmental programs claiming higher priority. However, there is nothing inherent in the problems themselves that makes them unsolvable.

The overall improvement plan developed by the ad hoc commission for civil registration and vital statistics should focus on the solvable problems. These can be solved now under existing circumstances and without large financial implications. The relatively intractable problems must, to a large extent, await general social and economic development. Attempts to deal with the problems solvable but requiring additional funds must take cognizance of the fact that national civil registration and vital statistics are national responsibilities, and financial support for these continuing and nationwide governmental activities must come from national funds.

Countries can obtain some support from technical assistance programs, but such support is usually provided for a limited range of purposes and for a limit-led time. For years, the UNFPA has had a generous program of assistance for the improvement of civil registration and vital statistics. However, even here, there are limitations on the available funds and the purposes for which they may be used.

Mobilization of resources

An essential aspect of the strategy for improving civil registration is to mobilize and use the resources available at various government levels, and to carry out the necessary activities according to an integrated plan for reform. In preparing a blueprint for reform, recognition should be given to functions that must be carried out centrally by national agencies. In Kenya, for example, central planning was entrusted to two committees, one on registration and the other on problems of public enlightenment. Officials believed that public relations required special attention and involved skills not available among registration executives. Other activities can be done more efficiently centrally but could be handled at a subnational level. Finally, some activities must be conducted subnationally, more particularly at the local level.

Among other things, the drafting of national legislation on civil registration and vital statistics and of the organization plan of the national civil registration and vital statistics systems have to be done centrally under the direction of the presidential commission or some other high-level committee. In countries where the states or provinces are autonomous of the federal government and have responsibility for civil registration, the national civil registration agency, if there is one, must draft a model state law governing civil registration for adoption by the states. To unify registration practices, the national agency must prepare a manual of registration procedures, including definitions of vital events, registration methods and procedures, format of records for collection of statistical data on vital events, coding rules, and so on. Most of these activities should involve the collaboration of state and local registrars.

The preparation of training material for local registrars and of promotional material for the enlightenment of the public on the importance of registration of vital events is something that can be done by the state or provincial registration authorities. Because any such material for one area should be generally applicable to all other areas of the country, it might be more efficient to prepare these materials centrally. However, it would be appropriate for one or more state or provincial offices to develop training courses and promotional campaign material which could be shared by other states or provinces.

The reorganization of primary registration units and modifications in registration procedures and flow of records must be made in the local area under the direction of the subnational registration authorities. Also, negotiations for the establishment of registration sub-offices in large hospitals and health centers must be conducted locally. Other important local activities are training of local registrars and publicity campaigns on the importance and value of registration of vital events.

An important part of the strategy is to make a concerted effort to solve problems that are amenable to solution in a manageable geographic area. The futility of tackling currently insoluble problems has been discussed previously. In general, these are problems of the rural areas, especially in the remote, inaccessible places. It would be well to leave such areas until the last and focus early attention on geographic areas where there is a reasonable chance of success in obtaining significant reforms. This means that the overhaul and the revision of the registration organization and procedures, plus promotional work, should start in the cities. Once the registration system in urban centers is operating efficiently, attention can be shifted to the rural areas. Here again, the rural parts of the country with the fewest difficult problems should be selected first. In general, these will be rural parts contiguous to the urban centers.

Suggested Activities in Civil Registration and Vital Statistics

There are numerous studies and steps that can be taken to improve civil registration and vital statistics. Some of these possibilities are listed below, according to the area of responsibility.

Activities primarily the responsibility of the central government

Appoint a high level presidential or cabinet interministerial commission to prepare a unified plan for the improvement of civil registration and vital statistics. Among other things, the plan should designate the ministries responsible for the implementation of each aspect of the plan. The commission may be a continuing body to periodically review the progress in implementing the plan and to serve as a coordinating body.

Activities primarily the responsibility of civil registration authorities

- Implement a unified plan for national reform of the civil registration system.

- Conduct a systematic study of each facet of civil registration, such as registration procedure, fee system, penalty for late filing, transcription of records, filing and preservation of records, certification procedures; and of the whole administrative organization of the system including the location of primary registration offices, with a view to identifying and correcting deficiencies in the system.

- Experiment with innovative registration procedures and methods, and with office procedures, to increase the efficiency of various operations.

- Make improvements in the flow pattern of registration documents from the local registration offices to the central office.

- Make improvements in the organization, maintenance, and retrieval of records—both centrally and in the field.

- Make improvements in employment standards, incentives, and distribution of work loads. Develop and conduct training courses for registration personnel.

- Arrange to use local auxiliary resources for registration; for determining incentives/penalties, uses, and value of individual records; and for the issuance of certifications of vital records. Create public awareness of the need for registration of vital events.

- Promote the use of birth registration records as proof of age, relationship, citizenship, and so on, by other government programs, such as requiring a birth certificate as proof of age for enrollment in grade school, for social security pensions, and for food rationing programs.

- Establish national and state field services to maintain uniformity of registration practices in and among the various states or provinces.

- In collaboration with the vital statistics authority, study the quality of information reported on vital records and the ways and means of improving the accuracy of reported information, including more complete and accurate statements on causes of death.

- Study the relationship between the civil registration system and the population register if one exists or is under consideration. Because vital records are essential for the updating of population registers, an efficient and timely notification method is needed.

- Develop a system for issuing a unique birth registration serial number. This number may also serve as a national identity number.

Activities primarily the responsibility of vital statistics authorities

- Implement the unified plan for national reform of the vital statistics system. Institute a "tabulation area" for compilation of national vital statistics starting with the geographic areas that meet the criteria of completeness and quality of data. As more areas qualify, include them in the national tabulation area.

- Establish and exercise tight control over records flowing from the local registration offices to the central statistical office.

- Collaborate with registration authorities in securing improvement of quality of statistical items on the registration records.

- Review tabulation plans and make needed revisions to bring them into conformity to the greatest extent possible with national needs and international recommendations.

- Plan and conduct data processing operations to ensure timely production and distribution of monthly and annual vital statistics reports.

- Develop analytical capabilities to increase the usefulness of statistical output by providing meaningful interpretation of data for national planning for social and economic development. Develop the means to apply statistical techniques for the management of incomplete data.

- Contribute to the improvement of intercensal and postcensal population estimates to provide the best denominators for calculating vital rates.

MAJOR OBSTACLES TO ACHIEVING SATISFACTORY REGISTRATION OF VITAL EVENTS AND THE COMPILATION OF RELIABLE VITAL STATISTICS[1]

Nora P. Powell

Introduction

A substantial body of literature details the theoretical and practical obstacles to achieving complete registration of vital events and of using the legal records as the source of reliable vital statistics. Do these obstacles really exist? If so, can they be removed? Has any progress been made in overcoming them? What would be required to bring about improvement?

To find answers to these questions, in October 1979 the International Institute for Vital Registration and Statistics sought the opinion of its 127 *ex officio* National Members who were responsible at that time for civil registration and/or vital statistics in the 80 developing countries that were represented in the Institute. Thirty-two officials responded:
8 from Africa; 11 from Latin America; 9 from Asia; and 4 from Oceania. Responses ranged from "no problems exist" to detailed statements on the obstacles encountered in trying to develop reliable civil registration and vital statistics systems. Perceptions may not represent the full complement of obstacles that might have been reported had the respondents been more representative of the developing countries as a whole. This limitation should be borne in mind in interpreting the responses set forth below.

Obstacles Reported

The obstacles reported fall into seven categories: (1) funding; (2) legal basis for the system; (3) organization of the system; (4) registration functions; (5) statistical functions; (6) staff (including training); and (7) the public. Some of these obstacles could be considered under more than one rubric.

Funding

All but one respondent reported that lack of funds was an obstacle. Funding is the underlying cause of many of the other problems facing developing countries, such as lack of adequately trained staff. Because of its universality and applicability to most other problems, the lack of adequate funding must be considered in connection with all the obstacles mentioned below.

Legal basis of the vital statistics system

Several obstacles that are legal in nature were reported, ranging from complete absence of a registration law and hence the authority to develop a conventional vital statistics system, to the need for a new or amended law.

Need for legal provision—a registration law. Very few countries have failed to enact basic legislation requiring compulsory nationwide registration of at least births and deaths. Among the 32 respondents to the survey, only two cited a lack of legal provisions for a vital statistics system and both of them observed that the government was aware of the need and had a draft law under

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consideration. Compilation of vital statistics, on the other hand, is governed in most cases by the law authorizing the collection of statistics in general. None of the respondents cited a problem in this area.

Deficiencies of current registration laws. Perhaps the most important legal deficiency cited was the failure to provide for a central registration authority that could direct the registration function throughout the entire country and monitor and supervise its performance. Although this deficiency is especially important for countries that are large in terms of either geographic area or population size, its effect can be detected also in smaller countries. Where distances are great, population predominantly rural and widely dispersed, and civil registration a relatively new experience, the lack of central direction, supervision and coordination inhibits registration coverage and quality, and hence impedes the development of reliable vital statistics. The advantages of having national control of registration has been strongly emphasized by the United Nations (1). Moreover, among the respondents to the IIVRS survey, such a central registration office was considered by many to be essential to success in developing a registration system and reliable vital statistics.

The legal deficiency that respondents mentioned most was the failure to make registration of vital events compulsory, and they also deplored the failure to impose obligatory penalties for noncompliance. They noted that mild penalties were virtually ineffectual.

Another inadequacy cited was the impractical time periods provided for the public to comply with the law. Respondents noted that where the public needed to travel long distances, often through areas rendered unapproachable in certain seasons, the difficulties encountered in reaching the registrar should be recognized and the statutory time periods for legal registration extended accordingly.

Although recognizing that underregistration of vital events was the prime and overriding example of failure to comply with the law, several respondents singled out as a problem the obtaining of burial permits without prior registration of death. Legal burial requirements in most countries include production of proof that the death was registered prior to interment. Failure to enforce the law in this regard occurs largely in rural areas but is known to be widespread. The result is underregistration of deaths and, equally important, loss of possible medical data that would have been included in the medical certification of cause.

Conflicting interpretations of the law was cited as one reason why data needed for statistical purposes were sometimes not collected at the time of registration. The clear definition of the duties of the local registrar is a serious problem that will be mentioned also under "Registration functions," below.

Organization of the vital statistics system

Once adequate legal provisions have been made for civil registration of vital events and compilation of vital statistics, implementation of the laws is required. Respondents recognized several general obstacles that impede development of complete registers and reliable statistics. These are set forth below.

Lack of appreciation among high-level governmental officials. Respondents cited the lack of appreciation of governmental officials at high levels of the need for complete and accurate vital statistics, and their failure to make a commitment to this end, as important obstacles to successful implementation of the law. Several respondents complained that priority at the national level was given to surveys and sample registration systems and that, as a result, support for the conventional vital statistics system was not strong enough. They urged that the development of the system be looked upon as the ultimate goal, although it might require short-term alternatives

such as registration on a sample basis to serve as a means of experimenting with procedures, educating the public and providing a source of current data.

Lack of coordination. Failure to coordinate the separate elements responsible for the conventional vital statistics system was the concern of a number of respondents in Latin America and Africa. One suggestion for remedying this deficiency was the establishment of an advisory board. According to a respondent from a country where such a board had proven useful, "it would consist of representatives from all public sectors concerned with civil registration and the exploitation of vital statistics as well as representatives of the various ethnic, religious, social or cultural groups." Other respondents mentioned specific instances where coordination was lacking, including that between medical officers and civil registration officials and between statistical officers and local registrars.

Deficiencies in the organization of civil registration. Most comments on organizational problems dealt with civil registration functions and how they were organized. Respondents cited the lack of an autonomous central registration office, responsible for the intermediate and peripheral (local) registration units, as one of the greatest handicaps to organization of civil registration in Africa and Latin America. They pointed out that when local registration was dependent on separate municipalities or larger civil divisions rather than on a national registration authority, the registration function did not receive the support and prestige it deserved and, as a consequence, the public did not appreciate the need to register. They also noted that lack of monolithic machinery for registration in a large country had resulted in personnel problems because registration officials were drawn from other staff on a part-time basis with serious results. Related to this point, they observed that the registrar-general type of organization did not fully meet the deficiency because the registrar-general's department may also be responsible for registering deeds, companies, trademarks, patents, and the like and hence could not give to civil registration of vital events the attention it required. Closely related to the whole question of organization was the constraint experienced in some countries by the lack of a suitable framework for use in organizing a vital statistics system, in particular, the lack of a current census of population.

Respondents pointed to the lack of a notifier system by which the local registrars become aware of vital events through other persons involved with births and deaths, such as midwives, medical officers, nurses, graveyard attendants, school teachers, policemen, religious officials and so forth, as an obstacle to success. They observed that events that occurred in institutions were usually registered, but those that required the cooperation of the individual legally responsible registrant tended to go unregistered.

Difficulties encountered in the organization for compiling vital statistics. According to an IIVRS study (2) completed in 1977, among 154 countries for which information was available, vital statistics were compiled by the central statistical office in 125, by the public health service in 17, and by a central registration service in 12. This evidence of an almost universal organizational pattern for compilation of vital statistics, coupled with the observation that virtually no obstacles were reported by respondents on the question of statistical organization, indicates that the difficulties encountered have their origin in the statistical functions themselves.

For example, respondents reported difficulties the central statistical office encountered in compiling statistics from records collected by another administration. Two respondents pointed out that the lack of authority to instruct and correct registrars in their functions as they relate to the statistical use of the records was an obstacle to obtaining good data. They also blamed the lack of statistical control over the registration function for failure to produce timely vital statistics because of the delays in reporting from the field and the inability of the statistical authorities to compel timely compliance. They mentioned the difficulty or even inability to establish coordination

between the central statistical office and the peripheral registration units (communes, municipalities, etc.), especially in a decentralized system.

Registration functions

The United Nations defines the registration function as the "continuous, permanent, compulsory recording of the occurrence and characteristics of vital events..." The elements of this definition, especially the "continuous" and "compulsory" aspects, give rise to many problems that attracted the most responses in the survey. The obstacles mentioned by the most respondents were (1) wide dispersal of population in rural areas and their remoteness from centers where registration could take place; (2) lack of transport and means of communication to deal with the situation mentioned in (1); (3) illiteracy of the population; and (4) delayed or late registration.

Wide dispersal and remoteness of rural population. Respondents in all parts of the world were concerned with the geographical remoteness of population from centers where registration could be made because of its acknowledged effect on completeness of registration. They deplored as an organizational barrier the requirement that registration be effected at a center remote from the local units (villages) where people live. They also noted the uneven distribution of population living in villages.

Lack of sufficient transport. Respondents pointed out that it was difficult, if not impossible, to initiate and maintain contact with remote segments of population principally because adequate transport for the field staff was not available. For example, one respondent reported that a single Land Rover was provided for field communication among an estimated population of 14 million in an area of some 225,000 square miles.

Illiteracy of the population. The illiteracy of the population was cited as an obstacle to registration in African and Asian countries. The difficulties of reaching the population either through local registration services or by mobile units were compounded when the population was unable to profit from printed instructions and propaganda.

Delayed or late registration. The delayed registration of births and deaths, mentioned by respondents from Africa, Latin America, Asia and Oceania, may be due to ignorance of the public concerning their obligations under the law or to failure or inability to comply with the law within the statutory time periods allowed. Late registration of births was more common than that of deaths because of the need for a birth certificate to enable children to enter school, or for parents to obtain certain benefits in some countries. But late registration of births also required great care on the part of registration officials in order to establish the correctness of the information on identity, birthplace, date of birth and so forth. The staff time required for this investigation delayed current registration operations, which in turn delayed statistical processing. Delayed registration could also render inaccurate the statistics on births in cases where tabulations were made according to date of registration rather than date of occurrence.

Other obstacles. In addition to the four predominant obstacles encountered in the registration function, others dealing with specific procedures of registration that are more amenable to correction were reported as follows: (1) use of blank registration forms rather than printed ones, resulting in lack of uniformity of data inscribed and loss of information; (2) name changes after registration; (3) lack of space for files; (4) lack of registration materials; (5) lack of modern storage methods, such as microfilm; (6) lack of a central registration file; (7) lack of medical certification of death, especially in rural areas; (8) lack of inspection and supervisory systems to control registration at the local level; (9) certificates of birth and death deficient in particulars needed to satisfy statistical needs; (10) falsification of information; (11) lack of comparative studies of

registration procedures in areas considered "good" and "bad"; (12) lack of funds at local levels; (13) insufficient time for registering.

Statistical functions

Statistical functions, as opposed to registration functions, are concerned with collection, compilation, evaluation, tabulation and publication of vital statistics. These functions elicited 16 obstacles reported by 28 respondents in 13 countries of Africa, Asia, Latin America and Oceania. The two obstacles reported most widely were (1) delay in dispatch and receipt of statistical reports on vital events for processing; and (2) lack of adequate data processing facilities.

Delay in dispatch and receipt of statistical reports. These delays referred to two different types. The most important and most common was the transfer of individual statistical reports of vital events from the subnational registration unit to the level, usually national, where statistical processing took place. A related delay was that experienced in connection with publication at the national level when some type of aggregation or processing was performed at the subnational (perhaps provincial) level. The varying lengths of time required for this pretabulation could not help but delay publication of national data, since the latter was completely dependent on having returns from all subnational divisions. It also acted as a constraint on the diversity of the national data since they could be no more detailed than the aggregations submitted from subnational levels. Several respondents noted that the delay in receipt of reports on vital events for statistical processing could be eliminated if the central statistical service had some control over the registration function. Such control would also allow verification of the original data and facilitate supervision and examination of sources.

Lack of adequate data processing facilities. Respondents from African, Asian and Latin American countries cited lack of adequate processing facilities as a widespread obstacle. They expressed concern over the use of antiquated equipment for punching and tabulating, lack of funds for computer services and lack of adequate printing and storage facilities. Since some of these obstacles could be overcome by additional funding and trained staff, they recognized it as one of the problems potentially soluble with outside assistance.

Staff and training

Respondents representing all parts of the world reported a lack of adequate staff for both registration and statistical processing.

Lack of qualified staff. "Qualified" in this context means full-time trained personnel. Respondents noted the unsuitability of village mayors to serve as registrars and reported that rural registrars in general tended to be of low educational attainment. The necessity of using staff on loan from other governmental departments resulted in frequent transfers which, in turn, resulted in lack of continuity and required maintenance of continuous training programs. Part-time employees, delegated from other offices, were even more unsatisfactory since they remained responsible for their regular duties and hence had little interest in added functions. Respondents cited lack of adequate remuneration, especially of local registrars, as an ever-present obstacle.

Lack of sufficient staff. In addition to the low quality of the staff, respondents noted that there was often insufficient staff to meet the needs of receiving, verifying, coding and tabulating in the central statistical service. Many reported lack of sufficient staff to cover the registration functions among widely dispersed populations.

Lack of training. The lack of qualified and sufficient staff, outlined above, could be overcome at least in part by establishing training programs. Nine respondents cited a lack of training

facilities and programs, and one indicated that the problem was common to all African countries. Respondents noted that the training programs that did exist were in need of expansion of both scope and content. For example, registrars needed to be trained in the statistical uses of registration records and such training, especially for rural registrars, was said to be provided infrequently, if at all. In general, respondents reported a lack of appreciation of the need for such training on the part of both the authorities in charge and the staff involved. They reiterated that politically appointed registrars required continuous, rather than ad hoc, training programs because of rapid turnover.

The public

The cooperation of the public in making known the occurrence of a vital event is the keystone to success of the system. The legal basis of the system, the infrastructure of organization, its functions, its staff and their training, are ultimately dependent for success on the active cooperation of the population.

Ignorance of the public regarding statutory requirements. Several respondents noted that the public, especially in rural areas, tended to be ignorant of the statutory requirements for registration and of their duties and obligations in this regard. This obstacle is especially important because most of the births and deaths in rural areas occur at home where the responsible persons are those who live in the household in which the events occur. The ignorance of the public in these matters could be due to a number of causes. In many areas, the populations living outside the mainstream of society might be functionally illiterate and therefore immune to their obligations. Failure of the authorities to inform the public of their responsibilities and entitlements might also be a factor.

Resistance of the public to registration. Several respondents cited specific cases of a resistance of the public to registering vital events. For example, the resistance to having illegitimate births recorded on an official record of birth is known to exist in both developed and developing countries, and it is an understandable reason for underregistration. In an effort to remedy this situation, some countries have removed all reference to legitimacy from the legal record. Unfortunately, this course often eliminated the possibility of deriving illegitimacy statistics, thus losing an important analytical variable in fertility analysis.

Resistance to marriage registration among ethnic and religious groups is less well known or widespread. Respondents who reported it appeared to have no knowledge as to why this attitude persisted or how to change it.

Lack of motivation to register. Another reported attitude that impeded registration was the resistance of the public to register when no obvious personal benefit was conferred thereby. Several respondents in Africa and elsewhere noted that when people did not perceive a need for an official record of the event, there was no incentive to comply with the obligation to register, even when the obligation was understood. This seemed to be the principal reason for underregistration in most developing countries.

The legal record has value for proving identity, age, citizenship, filiation, marital status and so forth, but this value is important primarily in the settled, largely urban populations, since nomadic and tribal populations may have no immediate need for such proof. Major social changes would be required to bring these groups into the mainstream. Several respondents mentioned that the current interest in setting up population (civil status) identity registers had a deleterious effect on the establishment of civil registers of births, deaths and marriages in developing countries because the identity card issued in such systems served as the legal proof of identity, age, citizenship and marital status, replacing the birth and marriage records. The tendency for

information on such identity cards to be inaccurate and out of date did not deter their use for these purposes.

Failure of authorities to promote registration. The lack of publicity and promotional campaigns, including audiovisual training activities, on the importance of registration, has left the public ignorant of the legal, administrative and statistical importance of registration. The majority of the population does not have the statistical consciousness required to recognize the need for vital statistics in development planning. Without effective educational efforts by the authorities, the public will not be in a position to cooperate in the system.

Summary and Conclusions

In response to a survey conducted by IIVRS, over 100 separate obstacles were reported by 32 *ex officio* National Members in developing countries. Analysis of the obstacles revealed that, in addition to the lack of funds which appears to be an almost universal problem, respondents considered seven other problems to be of outstanding importance. These were (1) failure to provide by law for an autonomous, central registration authority; (2) failure to make registration compulsory; (3) lack of appreciation among high-level governmental officials of the need for vital records and vital statistics; (4) lack of registration services in remote areas of the country; (5) delayed (late) registration; (6) lack of qualified staff; and (7) lack of motivation among the public to register. Of these, the lack of an autonomous central registration authority, the lack of appreciation among officials of the need for vital records and statistics, and failure to motivate the public to register have the greatest impact in developing countries.

The various obstacles may be considered in three broad categories. In the first group are problems which are relatively intractable; they cannot be solved within the registration system itself. These problems relate to difficult geographic terrain; transportation; uneven distribution of the population; illiteracy; and deeply embedded cultural, social and economic patterns not conducive to an efficient registration process.

The second group consists of problems that are soluble but require funds to procure adequate staff, training, essential forms and supplies, office space, record storage facilities, equipment for document reproduction and data processing, printing, etc. There is nothing difficult about these problems except the need for adequate funding.

The third group of problems can be solved within the national domain and with relatively minor financial requirements, but they involve conflicting legal and competing jurisdictional interests. This set of problems includes adequate legislation, reorganization of the registration system and coordination between the different elements of the system.

There is no easy solution to any of these sets of problems, but the experience of some countries in each part of the world shows that adequate results can be obtained, at least in some aspects, if civil registration and vital statistics functions are given appropriate priority in governmental programs.

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IMPROVING CIVIL REGISTRATION SYSTEMS IN DEVELOPING COUNTRIES[1]

Forrest E. Linder

Present Status of Registration Systems in Developing Countries

Reliable vital statistics are universally recognized as a major element of any national demographic data collection and analysis program. Adequate vital statistics, in the traditional sense, are derived from a civil registration system and the individual documents that it produces. In view of the importance of vital statistics and an understanding of the general problems of improving the underlying civil registration systems, progress has been steady and pervasive, but nevertheless quite slow.

National registration systems have existed in some countries for decades—even centuries—and it can be noted that in contrast to ad hoc censuses or surveys, most countries have adopted legislation establishing continuous, permanent and compulsory civil registration systems. The strong legal basis for civil registration systems exists because registration is regarded primarily as a legal rather than a statistical function, and its history on this basis goes back to the early 17th century. In more fragmentary and special purposes forms, it goes back perhaps a thousand or more years before that.

Internationally, the questions involved have historically also received much attention. As early as 1853, the International Statistical Congresses began considering questions related to vital statistics, which were also matters of early interest to the International Statistical Institute when it was created in 1885, to the Health Division of the League of Nations, and, immediately upon its creation, to the United Nations. In its over 30 years of work in this field, the United Nations has carried on many significant activities—developing principles for vital statistics systems, publishing operating manuals, issuing numerous recommendations by Commissions and Councils, and providing a continuing sequence of seminars, conferences, and training sessions. Some bilateral and regional agencies have also been quite active.

In just the past three years, there have been at least six large international or regional conferences organized by the United Nations or bilateral agencies related exclusively to civil registration and vital statistics. In all, delegations from more than 60 countries attended these conferences, which were called to consider the status of civil registration in the respective regional areas and the means of achieving improvement. The effect of these conferences and other social developments means that there is greater awareness of the need for good civil registration than ever before. The United Nations has adopted over 90 formal resolutions relating explicitly or implicitly to civil registration and vital statistics. These resolutions are in addition to numerous recommendations by U.N. and World Health Organization commissions and committees. Recently, at its 21st Session in January 1981, the U.N. Statistical Commission endorsed an extensive and continuing U.N. program for the improvement of civil registration. The resolutions relate registration and vital statistics to economic development, social development, and public administration. In addition, the two Human Rights Covenants, ratified in 1976, explicitly and implicitly recognize civil registration as an essential process in establishing some of these rights.

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[1]This article is an edited version of IIVRS Technical Paper No. 20, October 1982. The original document contains source references not included here.

As is expressed in the numerous U.N. resolutions and recommendations, the documents derived from civil registration are essential as a basis for measuring population change and evaluating the success of population programs; as a basis for health statistics; as a basis for social studies; and as a basis for establishing the individual civil rights of children, women and men.

Even with this recognition of the importance of civil registration and vital statistics, there are numerous problems in achieving improvements. Some of these problems relate to geography, transportation, literacy of the population, and organization and management matters related to literally thousands of local government employees scattered throughout a country that have responsibility for some aspects of the process. The problems are difficult, but the experience of some countries in each part of the world shows that adequate results can be obtained at least in some aspects.

Some problems arise from the fact that the responsible officials at the national level may be located in any one or more of several ministries—interior, justice, health, economics, the supreme court, and so on. As a heterogeneous group, they have been largely outside the mainstream of international activity and may only accidentally learn of new developments in other countries in law, organizational ideas, new operating technology, or even of the relevant U.N. resolutions.

An analysis of the completeness with which vital events are registered can be based on the percentage of births and deaths that get registered currently. Such information may be fragmentary as well as subject to deficiencies in method of derivation. The United Nations *Demographic Yearbook* contains by far the most comprehensive and reliable available information on this question.

From the U.N. *Demographic Yearbooks* for 1975, 1969, and 1959 in which natality statistics were the featured subject, completeness codes for births in the less developed countries were assembled for the latest available year in the natality trend tables. Among the 91 countries with indices of completeness, 50 are said to have completeness of 90 percent or better at the present time, while 41 show the "incomplete" code. For the remaining 71 countries, the quality was reported as "unknown." These data show that the quality of birth statistics remains less than satisfactory, especially in Africa, Asia and Oceania.

With such a long history and with so much national and international attention given to civil registration systems, it is appropriate to ask why such systems in many developing countries are still considered inadequate.

Part of the problem arises because civil registration systems serve two completely disparate sets of purposes, and therefore two sets of criteria of adequacy are applied with perhaps an overly harsh judgment of whether the system is serving either purpose usefully. The expectation that the system should produce 100 percent error-proof records is a criterion not usually applied to other statistical systems. The U.N. *Demographic Yearbook* systematically applies to national civil registration data a designation of "complete" or "incomplete"—dividing the data on this basis at an estimated 90 percent completeness level. Such an evaluation is not applied to census results, although it is certain that some finished census operations have an incompleteness of more than 10 percent, and a considerable number of censuses have an incompleteness of 100 percent because they are never finished at all. For sample surveys, the situation is even worse. Some of the best surveys give estimates of sampling error, but few if any can give real estimates of bias in or completeness of the different variables, although such errors can run to very high percentages indeed.

One of the purposes of a civil registration system is to provide a documentary source for vital statistics. For this purpose, it would, of course, be ideal to have a nationwide 100 percent count of events and complete coverage for all important variables. Lacking this, however, the data are

not necessarily valueless. Analytical methods for using incomplete data, sample registration schemes, selective tabulation area procedures, and so forth, can and have produced usable information for demographic purposes and for social and economic planning.

The other primary purpose of a civil registration system is to produce documentary proof essential for individual juridical uses. However, here again a too-harsh criterion of adequacy of the system should not be applied. If a segment of the national population lives outside the usual national social and economic culture, a need for immediate registration may not exist. If, for example, the first use of a child's birth certificate is to establish age for school entrance, little harm is done if registration is delayed beyond the first year. The legal record has value for proving identity, age, citizenship, filiation, marital status and so forth, primarily in the settled, largely urban populations, while rural, nomadic and tribal populations may have little need for such proof. To bring them into the mainstream would be contingent on social change that may not be imminent in many countries. Still, in such countries, the registration system may be more or less adequately serving one or both of the purposes for which it exists.

Obstacles to Improvement

Irrespective of the caveats above, it must be recognized that the obstacles to improving a civil registration system in a developing country are difficult problems most of which require a long-term effort to solve. In developed countries, civil registration systems have been improved by decades of effort and may even now still have serious defects.

To list and classify these obstacles to improvements, the International Institute for Vital Registration and Statistics (IIVRS) sought the opinion of its national members who are responsible for civil registration or vital statistics in the developing countries represented in the Institute. Associates from 32 countries responded with expositions of the problems they faced. These respondents are officials in countries representing every continent of the world. Responses ranged from "no problems exist" to detailed statements on the barriers that were currently being encountered in trying to develop reliable civil registration records and vital statistics.

As would be the case with any widespread governmental operation, numerous obstacles were reported that must be overcome to increase the efficiency of the system. These obstacles can be arranged and classified in many different ways and, of course, they overlap and interrelate so that most could be considered in more than one category. However, another way to consider the difficulties is according to what is necessary or how resistant or susceptible the problems are to solution. From this point of view, the problems might be considered in three broad groups: relatively intractable problems relating to geography and culture; problems solvable but requiring additional national or outside technical assistance funds; and solvable problems.

Relatively intractable problems. This group of problems presents a number of obstacles, many of which can be solved within the framework of long-range social and economic development, but can hardly be solved by short-range actions taken within the civil registration system itself. In other words, the solutions lie outside the scope of changes that the registration system itself can bring about. Some of this group of problems relate to the geography of the country and an uneven distribution of the population. Here, problems of transportation and communication vastly complicate the operation of an efficient civil registration system.

Closely related to this, is the nature of the population. A predominately rural, largely illiterate population is not conducive to a high degree of registration completeness or accuracy. A population of this type may lack any motivation for registration, may fail to comply with the laws or even be aware of them, or may delay reporting the occurrence of a vital event. In extreme cases, there may exist a resistance to registration and falsification of reported information.

As stated, the impact of these conditions may be ameliorated as social and economic conditions improve, but their solution is hardly within the domain of the civil registration system alone.

Problems solvable but requiring additional national or outside technical assistance funds. There is a long list of problems whose solution is primarily a matter of adequate funds. This list includes adequate staff, proper training, availability and distribution of essential forms and supplies, transport for supervisory or training staff, office space, modern record storage, document reproduction equipment, data processing facilities, printing facilities, and so forth.

In contrast to the relatively intractable problems, most obstacles in this category could rather quickly be eliminated if adequate funds were available. It is difficult to estimate national expenditures for civil registration because the process is so intertwined with other regular governmental operations, but the lack of funds in national budgets for specific registration needs is certainly an almost universal impediment to the improvement of the national civil registration systems.

Internationally, civil registration and vital statistics are recognized as major components of a required national demographic data system. However, the amount of international technical aid resources that have been directed at registration improvement has been trivial compared to the very large international investment for improving population censuses and demographic surveys.

Solvable problems. This group of problems presents obstacles that can be solved within the national domain and with relatively small financial requirements. They include the adequacy of legislation, the nature of the civil registration organization, the methods of coordinating the different elements of the system and the priority given to the whole enterprise by the government. This is not to say that these problems are necessarily easy to solve. There are conflicting legal interests, there are questions of competing jurisdictional control, and there are other governmental programs claiming higher priority status. However, there is nothing inherent in the problems themselves that makes them insoluble.@@@@

In reference to legislation, there are very few countries lacking national or provincial laws requiring the registration of vital events. Many of these, however, may be deficient in specific detail, such as failure to make registration compulsory, impractical time requirements for registration and other operational points.

Perhaps the most important legal deficiency is the failure to provide a central registration authority that can direct or coordinate the registration function throughout the entire country and monitor or supervise its operation. This and related questions of organizational arrangements are certainly the most crucial problems of registration that are susceptible to solution.

In considering the organizational status of civil registration and vital statistics systems throughout the world, the question should be examined from two points of view: (1) What is the effect of the organizational differences among countries? and (2) What are the nature and effect of the allocation of responsibilities within a country?

With reference to the differences among countries, of course, the efficiency of a system in one country does not depend on how the system may be organized in another country. Nevertheless, at the international level, a major difficulty is the heterogeneity of the patterns of national agencies responsible for vital registration and vital statistics among the countries of the world. In a few countries, the responsibility rests with health ministries; in other countries, the responsibility for both registration and statistics rests with a special central national agency such as the registrar general's office. In other countries, the registration function may rest with the ministry of interior (as a local government function) or with some other governmental entity, and the statistical aspect may be the responsibility of a central statistical office.

A study of 135 countries shows the following distribution of national responsibilities for administering or monitoring civil registration and for compilation of vital statistics:

Responsibility for Administering or Monitoring Civil Registration

	Countries
National Office of Registration	60
National Health Office	14
National Statistical Office	11
No responsible national office	50
	135

Responsibility for Compilation of Vital Statistics

National Office of Registration	12
National Statistical Office	106
National Health Office	17
	135

The heterogeneous character of the national organizational patterns has tended to inhibit the evolution of widely accepted international organizational models for vital registration systems. General-purpose national statistical offices are also not organized on a uniform basis, but such organizations do have a much more uniform pattern of organization and function, which has facilitated the development of internationally standardized concepts and principles. The heterogeneity of national vital registration agencies is also an obstacle to the international dissemination and interchange of technical information on new methods and the application of improved techniques. There is no international intergovernmental agency that serves as a forum where the varied group of national official statisticians, health officials, judicial officials, and other national officials responsible for local government can intercommunicate about registration systems. The national heterogeneity of organizational responsibility is reflected also in dispersed responsibility among the various units of the United Nations structure and this has retarded development of the recommended U.N. programs for the establishment of uniform vital registration systems.

Important also from the standpoint of improving vital statistics in a country is the frequent dispersal of responsibility for different components of the chain of functions involved with the registration systems to different agencies within the same national government.

Table 1. Civil Registration and Vital Statistics: Responsibilities of National Agencies

National responsibility for compiling vital statistics	Total	National responsibility for civil registration: Central registration office	Central health office	Central statistical office	No central responsibility
Central registration office	12	12	–	–	–
Central health office	17	5	10	–	2
Central statistical office	106	43	4	11	48
Total	135	60	14	11	50

Table 1 shows this mixed pattern for 135 countries. The responsibility for the vital statistics compilation lies with the Central Statistical Office in 106 countries; yet, of these, the Central Statistical Office has responsibility for civil registration in only 11 countries. Looking at the table from another axis, national responsibility for civil registration rests with a national Central Registration Office in 60 instances, but of these the Central Registration Office is responsible for statistical compilation in only 12 instances. All in all, in only 33 of the 135 countries reported in Table 1 is the responsibility for both registration and compilation in the same national agency. An even more serious problem is that apparently in 50 of the 135 countries there exists no national agency with a clear responsibility for monitoring or improving civil registration. In many of these cases, local registration may be a function of local civil administrative or judicial offices. In such cases, there may be a national ministry that has nominal jurisdiction over registration, but this administrative jurisdiction may be molded, in an almost unidentifiable way, into numerous other aspects of local administrative work.

An additional complicating organizational factor is that although many countries are constitutionally organized as geographic unitary national entities, other countries are federations of states or provinces. The distribution of powers between the national government and the provincial governments with regard to registration may vary widely. In some cases, registration may be the exclusive domain of the provinces, whereas in others there may be some defined or undefined federal government responsibility.

In terms of possible ease of improving the systems for registration and vital statistics, the national political organizational patterns may be grouped roughly into several classes:

Geographically unitary countries

- One agency responsible at the national level
- Multiagency responsibility at the national level

Geographically federated countries

- One agency responsible at the national level
- Multiagency responsibility at the national level

The case of a geographically federated country with multiagency responsibility at the national level can present a complex of jurisdictional gaps and overlappings that can hardly be solved easily, but at least can be improved by various forms of coordination.

Higher Priority for Improving Systems

In view of the number and variety of problems to be solved in creating an efficient registration system, it should be obvious that no simple answers will be found. Taking an ad hoc survey or even taking a national census are finite, bounded projects. Improving a registration system, in contrast, is more analogous to creating a whole nationwide continuous local governmental operation. It is boundless not only in time but in the manner in which it is intertwined with numerous other governmental functions.

Undoubtedly, numerous steps can be and are being taken to improve registration, and many makeshift interim improvements can be made. However, real progress can be made only when governments are prepared to make the basic policy decision that adequate registration and vital statistics are essential for national well-being and economic and social progress.

The lack of a high-priority status among top governmental officials for vital records and statistics is one of the most important obstacles blocking improvement. To help impress upon officials the real need for vital records and statistics, the IIVRS has prepared two technical reports. The first of these, published in March 1980, explored the relationship of human rights and registration of vital events. The study showed that registration of births and registration of marriages are themselves human rights which the signatory states are obligated to provide. It also singled out 23 human rights whose realization depends partly on the civil registration of birth, death, marriage or divorce having taken place. In fact, the contribution of the birth record to the implementation of human rights is almost unique in its widespread application, making it by far the most important document issued by the registrar.

The second IIVRS study in this area dealt with the use of vital statistics as social indicators. This study demonstrated the essential role of vital statistics in accurately measuring changes that are taking place in population composition, levels and trends.

Indicators based on vital statistics have had a significant international history. They found an important place in the first (1954) international catalogue of components of levels of living. They are also included in the recent reference work on social indicators: *Social Indicators: Preliminary Guidelines and Illustrative Series,* approved by the U.N. Statistical Commission at its 19th Session in 1976. Not less than 36 indicators were described by the commission as useful for detecting incipient social problems as well as for monitoring recognized ones, for establishing scales in terms of which targets for better levels of living can be set, and for highlighting certain interrelationships among the various dimensions of well-being. Without exception, the 36 indicators derived from vital statistics are described as being concerned with measuring changes

in population, family formation and stability, and the state of health of the population. These uses put vital statistics high on the list of essential statistics and should serve to stimulate their development and improvement in all countries of the world.

Demographers recognize the need for accurate vital statistics for demographic analysis purposes, but the material also has a broader indirect application in that demographic trends have a profound impact on all phases of economic and social development.

The lack of a vital statistics system capable of producing even crude birth and death rates in a large number of developing countries, and the efforts of those countries to plan for and provide maximum support for development programs in the absence of such crucial data, emphasize the need for those countries to continue to be assisted in developing and improving their conventional civil registration and vital statistics system to the level where the resulting data can be used to formulate basic social and economic policy and programs and also to evaluate results.

ACTIONS FOR THE IMPROVEMENT OF CIVIL REGISTRATION AND VITAL STATISTICS[1]

International Institute for Vital Registration and Statistics

General Statement of Problem

The purpose of this document is to present the needs for an adequate national system of civil registration and vital statistics; the various problems and impediments to the development of such a system; and how these difficulties might be overcome by actions that might be taken nationally and internationally. Special reference will be made to steps that can be taken to accelerate the process of providing vital statistics for national planning of economic and social development.

The United Nations has adopted numerous resolutions concerning civil registration and vital statistics. These formal resolutions are in addition to the technical recommendations made by various international commissions and committees. The resolutions relate registration and vital statistics to economic development, social development and public administration. In addition, the two Human Rights Covenants, ratified in 1976, explicitly and implicitly recognize civil registration as an essential process in establishing some of these rights.

The United Nations program for the World Population Year 1974 recognized the importance of civil registration in the following words: "It is essential that the lack of demographic statistics in a large part of the world be overcome—and vital registration systems be introduced in all countries of the world." This recognition reflects the previous action of the Economic and Social Council of the United Nations which, in 1968, requested the Secretary-General to undertake a *World Programme for the Improvement of Vital Statistics,* convinced that such a program would assist developing countries to provide the statistical base for planning the development and use of human resources as well as for charting economic and social development, and providing a constant measurement of progress towards the objectives of the Second United Nations Development Decade. The United Nations *World Population Plan of Action* stated further that "in line with the objectives of the *World Programme for the Improvement of Vital Statistics,* countries are encouraged to establish and improve their vital registration system, as a long-term objective, and to enact laws relevant to the improvement of vital registration...."

Virtually all countries have adopted permanent legislation providing for compulsory and continuous registration of vital events. However, the quality of the systems varies from excellent to very poor. All of the developed countries have efficient systems. Some countries considered to be in the "developing" category have systems that are adequate. The systems of a number of other countries are on the verge of becoming adequate for certain purposes. Other newer countries are at the beginning stages. Despite all the resolutions and specific recommendations for the improvement of civil registration and vital statistics, progress has been slow in the implementation of recommendations in the developing countries.

One reason for the seeming lack of progress is that not all the major barriers to improvement can be easily or quickly removed. For example, because of difficult terrain and the lack of roads and transportation, the local registration office may be virtually inaccessible to a large part of the population in these areas. There is little that the civil registration authorities can do to establish a communications network, and it may take years of economic development before a

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[1]This article is an edited version of IIVRS Technical Paper No. 27, December 1983. The original document contains an extensive bibliography not included here.

transportation system becomes a reality. On the other hand, it may be possible to organize now a mobile system to bring the registration authority closer to the public to be served.

The case for action to improve civil registration and vital statistics rests not only on the great need for the specific type of data produced by this system, but also on the fact that it can be demonstrated that effective progress can be made and the cost-effectiveness considerations are favorable. The cost-effectiveness considerations take account of the fact that in almost every country registration laws exist, and the basic infrastructure and the costs for a national network for registration are already largely in place through the local government structure. Reliable estimates of present expenditures of developing country governments for vital registration are elusive, but the current aggregate certainly runs into the tens or hundreds of millions of dollar equivalents per year.

Although national registration systems have existed in some countries for decades, even centuries, the matter is by no means static, especially in developing countries. Many of those countries are in the process of formulating new legislation, new organizational arrangements, and new administrative procedures to obtain improvements in the existing systems. However, it is essential that the activities be directed at basic problems amenable to solution now or in a foreseeable future. Also, the program emphasis should be on ways and means of producing vital statistics for the country as soon as possible.

Parallel to these national activities is a wide range of international activities which, in view of the planning need for accurate vital statistics, are designed to encourage and assist countries in their efforts to improve their systems. In its over 30 years of work in this field, the United Nations has carried on many significant activities—development of principles for vital statistics systems, publication of operating manuals, numerous recommendations by commissions and councils, and a continuing sequence of seminars, conferences and training sessions. Some bilateral and regional agencies have also been quite active.

The United Nations Fund for Population Activities (UNFPA),[2] in view of the need for birth and death rates—national, regional and global—as an index to population change, has supported many efforts by countries to improve their civil registration and vital statistics systems.

In the past several years, there have been at least six major international or regional conferences organized by the United Nations or bilateral agencies related exclusively to civil registration and vital statistics. In all, delegations from more than 60 countries attended these conferences. All of these conferences were called to consider the status of civil registration in the respective areas and the means of achieving improvement. These conferences suggest that there is greater awareness of the need for good civil registration than ever before. It is essential that these interests be channeled into the most effective pathways for producing national vital statistics.

With such a long history of civil registration, and with so much national and international attention given to civil registration and vital statistics systems, it is appropriate to ask why such systems are still considered incomplete and inadequate in many countries. An analysis will be made of the problems, and the respective roles of the national, regional and international agencies in solving these problems will be examined. This will be followed by recommendations for a coordinated program for the improvement of civil registration and vital statistics.

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[2]Editor's note: Now the United Nations Population Fund (UNFPA).

Analysis of the Problem

A comprehensive survey of problems in civil registration and vital statistics would involve a detailed review of civil registration laws and regulations, the administrative organization of the civil registration and vital statistics systems, the relationship between civil registration and vital statistics agencies, the civil registration and vital statistics processes and practices, as well as the different socioeconomic and cultural factors that constitute impediments to the registration of vital events. However, the efficiency of a national system may be summarized by one measure, the completeness of registration of the various vital events. This criterion for adequacy of national systems will be discussed. The major obstacles to the improvement of civil registration and vital statistics will then be presented.

Criteria for adequacy of national systems

One measure of the adequacy of national systems is the completeness with which vital events are currently registered. Unfortunately, there is now no way of measuring precisely the completeness of registration of vital events in developing countries. What are available, for the most part, are the evaluations of the registration authorities in the different countries with respect to registration completeness of births and deaths that occur in the country. The United Nations *Demographic Yearbook* contains such estimates of registration completeness.

From the 1975, the 1969, and the 1959 *Demographic Yearbooks* in which natality statistics were the featured subject, completeness codes for births in the less developed countries were assembled for the latest available year in the natality trend tables. Among the 91 countries with indices of completeness, 50 are said to have 90 percent or better completeness at the present time, while 41 show the "incomplete" code. The 50 countries with complete registration are distributed by continent as follows: Africa, 8; Latin America, 28; Asia, 8; and Oceania, 6. These data show that the quality of birth statistics remains less than satisfactory, especially in Africa, Asia and Oceania.

The measure of the percentage of births that may be registered is an oversimplification of a full evaluation of the adequacy or efficiency of a national system. This situation arises because civil registration systems serve two completely disparate sets of purposes. Therefore, a single simple criterion of adequacy may give an overly harsh judgment of whether the system is serving either purpose usefully. The expectation that the system should produce 100 percent error-proof records is a criterion not usually applied internationally to other statistical systems. For example, such evaluation is not applied to published census results although it is certain that some finished census operations have an incompleteness of more than 10 percent and a considerable number of censuses have an incompleteness of 100 percent because they are never finished at all. For sample surveys, the situation is even worse. Some of the best surveys give estimates of sampling error but few, if any, can give real estimates of bias in the different variables, although such errors can run to very high percentages indeed.

One of the purposes of a civil registration system is to provide a documentary source for vital statistics. For this purpose, it would, of course, be ideal to have a nationwide 100 percent count of events and complete coverage for all important variables. Lacking this, however, the data are not necessarily valueless. Sophisticated analytical methods for incomplete data, sample registration schemes, selective tabulation area procedures, and so forth, can and have produced usable information for demographic purposes and for social and economic planning.

The other primary purpose of a civil registration system is to produce documentary proof essential for individual juridical uses. However, here again a too-harsh criterion of adequacy of

the system is not meaningful. If a segment of the national population lives outside the usual national social and economic culture, an immediate need for registration may not exist; and if, for example, the first use of a child's birth certificate is to establish age for school entrance, little harm is done if registration is delayed beyond the first year. The legal record has value for proving identity, age, citizenship, filiation, marital status and so forth, primarily in the settled, largely urban populations, while nomadic and tribal populations may have little need for such proof. To bring them into the mainstream would be contingent on social change that may not be imminent in many countries. Still, in such countries, the registration system may be more or less adequately serving one of the purposes for which it exists at the present level of demand for individual documentation.

Major obstacles to registration improvement

To ascertain the nature of obstacles to the development of a good registration system, the International Institute for Vital Registration and Statistics sought the opinions of its national members responsible for civil registration or vital statistics in the less developed countries represented in the Institute. Members from 32 countries responded with exposition of over 100 problems that they perceived.

The more than 100 barriers to achievement of complete registration of births and deaths and reliable vital statistics were concerned with well-defined elements of the civil registration and vital statistics systems.

Analysis of the stated obstacles revealed that, in addition to the lack of funds, which appears to be an almost universal problem, seven other problems were considered by the respondents to be of outstanding importance. These were (1) failure to provide by law for an autonomous, central registration authority, (2) failure to make registration compulsory, (3) lack of appreciation among high-level governmental officials of the need for vital records and vital statistics, (4) lack of registration services in remote areas of the country, (5) delayed (late) registration, (6) lack of qualified staff and (7) lack of motivation among the public to register. Of these, the lack of an autonomous central registration authority, the lack of appreciation among officials of the need for vital records and statistics, and failure to motivate the public to register have the greatest impact in developing countries.

The various obstacles to registration improvement may be classified in other ways. One useful way of considering the problems and difficulties is in accordance with how resistant or susceptible the problems are to solution. From this point of view, the problems might be considered in three broad groups: (1) relatively intractable problems relating to geography and culture, (2) problems solvable but requiring increased funds and (3) solvable problems.

Relatively intractable problems. This group of problems presents a number of obstacles, many of which can be solved within the framework of long-range social and economic development, but can hardly be solved by short-range actions taken within the civil registration system itself. In other words, the solutions lie outside the scope of changes that the registration system itself can bring about. Some of this group of problems relate to the geography of the country and an uneven distribution of the population. Here, problems of transportation and communication vastly complicate the operation of an efficient civil registration system.

Closely related to this, is the nature of the population. A predominately rural, largely illiterate population is not conducive to a high degree of registration completeness or accuracy. A population of this type may lack any motivation for registration, may fail to comply with the laws or even be aware of them, or may delay reporting the occurrence of a vital event. In extreme

cases, there may exist a resistance to registration and falsification of reported information. Also, there will be problems in communication in any additional effort to improve registration.

As stated, the impact of these conditions may be ameliorated as social and economic conditions improve, but their solution is hardly within the domain of the civil registration system alone.

Problems solvable but requiring technical assistance funds. There is a long list of problems whose solution is primarily a matter of adequate funds. This list includes adequate staff, proper training, availability and distribution of essential forms and supplies, transport for supervisory or training staff, office space, modern record storage, document reproduction equipment, data processing facilities, printing facilities, and so forth.

In contrast to the relatively intractable problems, most obstacles in this category could rather quickly be eliminated if adequate funds were available. It is difficult to estimate national expenditures for civil registration because the process is so intertwined with other regular governmental operations, but the lack of funds in national budgets for specific registration needs is certainly an almost universal impediment to the improvement of the national civil registration systems.

Internationally, civil registration and vital statistics are recognized as major components of a required national demographic data system. However, the amount of international technical aid resources that have been directed at registration improvement has been trivial compared to the very large international investment for improving population censuses and demographic surveys.

Solvable problems. This group of problems presents obstacles that can be solved within the national domain and with relatively small financial requirements. They include the adequacy of legislation, the nature of the civil registration organization, the methods of coordinating the different elements of the system and the priority given to the whole enterprise by the government. This is not to say that these problems are necessarily easy to solve. There are conflicting legal interests, there are questions of competing jurisdictional control, and there are other governmental programs claiming higher priority status. However, there is nothing inherent in the problems themselves that makes them insoluble.

There is another class of impediments to national efforts for improvement. It relates to the fact that there is high priority to the current programs of family planning and health improvement at both the international level and the national level. The demand is for immediate results and for immediate statistical data that identify the health and demographic problems and measure the short-range impact of action programs.

Since the improvement of civil registration and vital statistics programs requires, because of the nature of the obstacles mentioned above, a long-range and sustained plan of action, there is a reluctance to invest in a long-range plan for the future. A frantic search is undertaken for short-range and immediate substitutes for conventional vital statistics. These short-range and immediate substitutes are in no sense adequate for the needs, so there is a retreat to the use of what might be called "intuitive thinking" and planning. This is an unfortunate result because the basic demographic and health problems are not likely to disappear in the near future, and soundly based planning is required.

Difficulties arising from the heterogeneity of patterns of national organizations

A special problem arises in dealing with issues of civil registration at the international level because of the varying patterns of national organizations for civil registration and vital statistics in the different countries of the world. In a few countries, the responsibility rests with health ministries; in other countries, the responsibility for both registration and statistics rests with a

special central national agency such as a registrar general's office. In other countries, the registration function may rest with the ministry of interior (as a local government function) or the ministry of justice (as a judicial function) or with some other governmental entity, and the statistical aspect may be the responsibility of a central statistical office.

As a heterogeneous group, the responsible national officials have been largely outside the mainstream of international activity in this field and may only accidentally learn of new developments in other countries in law, organizational ideas, new operating technology or even of the relevant international recommendations and technical assistance programs.

A study of 135 countries shows the following distribution of national responsibilities for administering or monitoring civil registration and for compilation of vital statistics:

Responsibility for administering or monitoring civil registration

	Countries
National office of registration	60
National health office	14
National statistical office	11
No responsible national office	50
	135

Responsibility for compilation of vital statistics

	Countries
National office of registration	12
National health office	17
National statistical office	106
	135

The heterogeneous character of the national organizational patterns has tended to inhibit the evolution of widely accepted international principles for the organization of vital registration systems. General purpose national statistical offices are also not organized on a standard basis, but such organizations do have a much more uniform pattern of organization that has facilitated the development of internationally standardized concepts and principles. The heterogeneity of national vital registration agencies is also an obstacle to the international dissemination and interchange of technical information on new methods and the application of improved techniques. There is no international intergovernmental agency that serves as a forum where the varied group of national official statisticians, health officials, judicial officials and national officials responsible for local government can intercommunicate about registration systems. The heterogeneity of organizational responsibility is reflected also in dispersed responsibility among the various units of the United Nations structure, and this has retarded acceptance of the recommended United Nations programs for the establishment of uniform vital registration systems.

More important from the standpoint of improving vital statistics in a country is the frequent dispersal of responsibility for different components of the chain of functions involved with the registration systems to different agencies within the same national government.

Civil registration and vital statistics: Responsibilities of national agencies

National responsibility for compiling vital statistics	Total	National responsibility for civil registration			
		Central registration office	Central health office	Central statistical office	No central responsibility
Central registration office	12	12	–	–	–
Central health office	17	5	10	–	2
Central statistical office	106	43	4	11	48
Total	135	60	14	11	50

Source: Nora P. Powell, Organizational Arrangements for a Vital Registration System, Working Papers, No. 1, International Institute for Vital Registration and Statistics, Chapel Hill, N.C., 1977.

The table above shows this mixed pattern. In the 135 countries studied, the responsibility for vital statistics compilation is with the central statistical office in 106 cases; yet, of these, the central statistical office has responsibility for civil registration in only 11 countries. Looking at the table from another axis, national responsibility for civil registration rests with a national registration office in 60 instances, but of these the central registration office is responsible for statistical compilations in only 12 countries. All in all, in only 33 of the 135 countries is the responsibility for both registration and compilation of vital statistics in the same national agency. An even more serious problem is that apparently in 50 of the 135 countries there exists no national agency with a clear responsibility for monitoring or improving civil registration. In many of these cases, local registration may be a function of local civil administrative or judicial offices. In such cases, there may be a national ministry that has nominal jurisdiction over registration, but this administrative jurisdiction may be molded, in an almost unidentifiable way, into numerous other aspects of local administrative work.

An additional complicating organizational factor is that although many countries are constitutionally organized as unitary national entities, other countries are federations of states or provinces. The distribution of powers between the national government and the provincial governments with regard to registration may vary widely. In some cases, registration may be the exclusive domain of the provinces, whereas in others there may be some defined or undefined federal government responsibility. Therefore, the problems of the civil registration and vital statistics systems will differ depending on the form of the national political organization.

The civil registration and vital statistics pattern in the unitary and federated countries may be summarized as follows:

Unitary countries

- One national agency responsible for both civil registration and vital statistics
- Multiagency responsibility at the national level

Federated countries

- No national agency responsible for civil registration, but a national agency responsible for vital statistics
- One national agency responsible for both civil registration and vital statistics
- Multiagency responsibility at the national level

The unitary countries with a single national agency responsible for both civil registration and vital statistics should have the minimum organizational problem of coordination between civil registration and vital statistics. Where the civil registration and vital statistics functions are being carried out in two different national agencies, there is need for coordination of the activities of these two agencies. The day-to-day operations require prompt delivery of statistical information of acceptable completeness and quality from the civil registration to the vital statistics agency. On a longer-range basis, there needs to be a working relationship to establish national definitions of the items on the vital records and periodic revisions of the vital record forms. Because changes in registration practices will have an impact on vital statistics, there needs to be full agreement on the changes before modifications in registration procedures are introduced.

The establishment and maintenance of a working relationship for the coordination of civil registration and vital statistics are difficult enough in countries with a centralized government. The difficulties are multiplied in the federated countries where the responsibilities are decentralized to the different states or provinces. In these countries, the role of the federal government is to coordinate and unify the activities of the autonomous states or provinces. In countries like the United States and India, the national government recommends for adoption by the states model legislation and regulations on civil registration and standard forms for the registration of vital events. The implementation of federal recommendations and the organization and administration of the civil registration system are in the hands of the independent state or provincial governments. The case of a federated country can present a complex of jurisdictional gaps that can hardly be solved, but it is possible to improve the operation of the civil registration system through various means of coordination and collaboration.

International Activities

In spite of the many international activities to assist in the improvement of national civil registration and vital statistics systems, the major difficulty at the international level is, as stated above, the heterogeneity of the national agencies responsible for civil registration and vital statistics. As has been detailed, in a few countries, the responsibility rests with the health ministry; in other countries, the responsibility for both registration and statistics rests with a special central

national agency such as the registrar general's office. In other countries, the registration function may be the responsibility of the ministry of interior or the ministry of justice, and the statistical aspect may be the responsibility of a central statistical office. There are also other more unique patterns. This factor of national variation is reflected in the dispersed responsibility among the various intergovernmental agencies, since each agency naturally relates primarily to its own national clientele.

Intergovernmental agencies

International agencies may be classified into two major groups—intergovernmental agencies in which the members are national governments themselves, and nongovernmental international agencies in which the members are not governments but individuals in their own private capacities.

There are numerous intergovernmental agencies, certainly more than several hundred. Some are global in scope, some are regional. Some have general terms of reference, others are specific and limited. Only a few have responsibilities that relate in any way to civil registration and vital statistics. Most important from this viewpoint is, of course, the United Nations and its principal permanent secretariat, and its vast system of councils, regional offices, permanent commissions, special fund organizations, and so on, and some 18 specialized and related agencies each of which has its own organizational pattern of secretariats, regional offices, commissions and committees.

Most important of all these organizations with concern for civil registration and vital statistics are the Statistical Commission, the Statistical Office, the Population Commission and the Population Division, of the United Nations Secretariat; the UNFPA; and, among the United Nations specialized agencies, the World Health Organization (WHO).

The U.N. Statistical Office, since 1948, has published an annual *Demographic Yearbook* that gives vital statistics data for all parts of the world. In addition, it has prepared important documentation including the *Principles of a Vital Statistics System,* two editions of the *Handbook of Vital Statistics* and many other relevant documents. The third revision of the *Handbook* is in preparation.

The U.N. Statistical Commission and the U.N. Economic and Social Council to which it reports, have adopted numerous policy and technical resolutions and recommendations relating to registration and vital statistics. Unfortunately, adequate funds to implement these recommendations have not always been available, although the UNFPA has given substantial support to data collection matters, including the improvement of civil registration and vital statistics.

The WHO publishes the *World Health Statistics* Annual. Volume I of this series is devoted to vital statistics and causes of death. The WHO also issues the *World Health Statistics Quarterly*, which presents analytical studies contributed by distinguished scientists to highlight mortality trends and differentials. To promote international uniformity of statistics, the WHO has been conducting the preparatory work for the decennial revisions of the *International Classification of Diseases* and calling decennial conferences for the adoption of the revised disease classifications. The WHO also recommends for international adoption the medical certificate form and rules for selection of diseases for primary mortality tabulations, as well as definitions of live birth, fetal death and low birth weight.

Aside from the United Nations and agencies related to it, a few other international agencies have carried on work to promote the improvement of civil registration and vital statistics. Most notable of these is the Inter-American Children's Institute headquartered in Uruguay. The Inter-

American Children's Institute is not a unit of the United Nations system but a specialized agency of the Organization of American States, having as its members, with a few exceptions, all of the North and South American countries.

Because of its interest in the welfare of children, the Inter-American Children's Institute for more than three decades has actively supported the improvement of civil registration as a necessary process to establish the legal status and family connection of children. Similarly, because of its interest in child and maternal health, the Institute has supported efforts to improve vital statistics.

As stated, these interests go back at least three decades during which period the Institute made and published a number of studies of the status of civil registration in the American states. More recently, under a grant from the UNFPA, the Institute has conducted a vigorous program of national systems evaluation, technical advisory activities and training projects. The scope and continuing character of the work of the Inter-American Children's Institute have made it the most effective regional agency working in this field.

Bilateral agencies

As emphasized before, the primary responsibility for the improvement of civil registration and vital statistics in a country must be assumed by that country itself. However, if a country seeks assistance in this task, there are various external sources of technical assistance and, in some cases, even temporary operating funds. International multilateral agencies such as the United Nations and the WHO have substantial technical assistance programs in this field.

Individual countries also make important contributions to international efforts for the improvement of civil registration and vital statistics because they recognize that good vital statistics are essential to national and worldwide economic and social development.

All of the work of the multilateral agencies is made possible by the financial contributions to these agencies by individual countries. In particular, the resources that the UNFPA can use for vital statistics projects in developing countries are based on voluntary contributions by countries to that Fund. The same is true of the work in this field by the U.N. Statistical Office, the WHO and other governmental international agencies.

Another way that individual countries help in the overall effort is by making available specialists from their own agencies to serve for limited periods of time as technical experts on assignment to the United Nations and other multilateral international agencies.

In these ways, the indirect contributions of national governments sustain the programs of agencies such as the United Nations. In addition, some countries have technical assistance programs in which the contribution is made directly from the donor country to the receiving country without an international agency acting as intermediary. These are referred to as bilateral programs.

Perhaps the major element in these bilateral technical aid programs that relates to civil registration and vital statistics is the portion that is directed to training of registrars and statisticians. A number of developed countries with efficient registration systems have offered fellowships and travel grants to governmental officials in developing countries to assist them in participating in a wide variety of academic courses, seminars, nonacademic special courses and observation and study tours.

Many European countries have offered such training opportunities to officials in selected countries. The United States has had training courses for national and local officials of developing countries extending back 40 years or more. The U.S. National Center for Health Statistics (and its predecessor agencies) started the international training courses as early as 1940 and

continued them on an intermittent basis until recent years. The U.S. Bureau of the Census includes a training module on civil registration and vital statistics in its current annual comprehensive international statistical training program.

At a Joint Nordic Meeting in February 1982, the Nordic countries of Finland, Norway and Sweden agreed to a joint program for technical assistance in civil registration and population statistics that will include a Nordic training program for staff of developing countries. Plans for this project are in the initial stages, and the Nordic countries are soliciting advice and comments from a number of agencies and experts with training experience in this field.

Another major aspect of bilateral assistance programs has been research on effective ways to improve registration. France has carried on a number of experiments in Africa as to the feasibility of continuous studies of population sample panels for obtaining estimates of vital rates. Extensive research was conducted by the Registrar General's Office in India with some bilateral assistance, as preliminary steps in establishing India's highly successful continuous sample registration scheme. With bilateral assistance, experiments on sample registration have also been conducted by Peru, Indonesia, Pakistan, and other countries.

The Program of the Laboratories for Population Statistics (POPLAB) at the University of North Carolina, in the United States, conducted extensive research activities on civil registration methods by projects in cooperation with the governments of Colombia, Turkey, Morocco, Kenya, Philippines, Ecuador and Egypt. The results of these research studies have been published in a number of Scientific Reports and discussed at six international POPLAB conferences, the last of which (1976) was attended by 50 participants from 17 countries and five international agencies.

Another major aspect of national bilateral programs has been to provide technical assistance experts directly to countries requesting such aid. Some of these assignments are for short periods, but many are for periods of one year or more. The assignment of a national expert to work with another country may involve direct financial assistance to initiate some proposed improvement or to conduct some type of demonstration project to illustrate or to test a new method of operation of some aspect of the civil registration or vital statistics system. The VISTIM program of the U.S. National Center for Health Statistics has been particularly active in assisting demonstration projects as joint efforts of the United States and participating countries.

National officials of developed countries are sent to international conferences where they participate with officials from other countries in reviewing the experiences of the various countries, presenting scientific papers on questions related to registration and vital statistics and making recommendations for future national and international action.

While these bilateral programs have made major contributions to the worldwide improvement of registration and vital statistics, such programs are not without problems. Perhaps the major difficulty with most of these programs is that they lack continuity. The improvement of such a fundamental and administratively complicated governmental function as civil registration requires a long-term and patient perspective. But bilateral programs, in this field at least, are ad hoc, temporary and subject to apparently irrational starts and stops. The United States program of assistance in this field has been particularly erratic as the responsible officials and consequently the program objectives and priorities constantly change. For example, the United States program of special training for vital statisticians has been started and stopped at least half a dozen times since it was first offered in 1943. This lack of continuity has resulted in substantial waste and inefficiency for the United States technical agency that presented the courses, since courses were designed, the necessary staff assembled and the classes started. This effort was largely lost when the financial backing was withdrawn, and then had to be done all over again when several years later it was decided to reinstate the training activity. The impacts of other aspects of the

United States bilateral program and those offered by other developed countries are also lessened because of their ephemeral character.

Another major problem with bilateral assistance programs is that the national experts are to a very large extent expert only in the laws and procedures of their own country. There are few experts in this subject that have a broad international orientation of the possible modes of organization and functioning of a civil registration system. An expert sent abroad on a bilateral assistance project to advise another country may understand completely the laws, definitions, procedural methods and national needs of his own country, but he may not have adequate experience to perceive what is needed and possible in another country with distinctly different traditions, different cultural patterns and a different level of social and economic development. Despite these problems, a country seeking to establish an improved civil registration system or improved methods of compiling vital statistics should not ignore the possibilities of obtaining bilateral assistance if technical help is desired.

Nongovernmental agencies

There are countless nongovernmental international agencies. In such organizations, the members are individuals or national organizations, but not governments as such. Although some members of nongovernmental agencies may be government officials, as members of nongovernmental organizations they act in their own private capacities and not as formal representatives of their countries.

Most nongovernmental organizations have a specialized area of interest and almost none relate to civil registration and vital statistics or even have a marginal interest in those topics. There are three major exceptions. These are the International Statistical Institute, the International Union for the Scientific Study of Population and the International Institute for Vital Registration and Statistics. While these agencies carry on activities that have a bearing on civil registration and vital statistics, none of them are a source for direct technical assistance to countries seeking to improve their systems.

International Statistical Institute. The International Statistical Institute (ISI) is a professional nongovernmental organization whose members are professional statisticians in governments, universities and commercial businesses. The ISI was organized in 1885 and is, therefore, perhaps the oldest organization of its type in the world. The ISI has consultative status with the U.N. Economic and Social Council and the United Nations Educational, Scientific and Cultural Organization (UNESCO).

In January 1983, the ISI had 1,220 honorary and ordinary members in 99 countries and approximately 120 national statistical offices whose directors are entitled to ex officio membership by virtue of their positions.

The formal organization of the ISI in 1885 was preceded by a series of 10 international Statistical Congresses, the first of which was in 1853 and the last in 1885 at which time the continuing ISI was established. The International Statistical Congresses were concerned to a large extent with demographic statistics, and consideration of questions relating to this field of statistics carried over into the early work of the ISI. Some of the basic concepts that now define a modern population census and the vital statistics systems were developed by the ISI in this period.

In recent years, the ISI has not been concerned directly with civil registration or vital statistics. But, because of its history of leadership in these topics, and because of the prestige of its membership of regular and ex officio statisticians, its influence remains important in demographic statistics.

An outstanding activity in the past decade has been the Institute's sponsorship and management of the World Fertility Survey (WFS). This has been an extensive series of surveys conducted with the cooperation of the ISI and national governments in more than 40 developing countries.

Without doubt, the WFS has been the most extensive and successful social survey program ever undertaken. It will continue to have an influence on fertility statistics and, consequently, on the more traditional type of vital statistics for years after the completion in 1984 of the active field aspects of the work. The analysis of the rich archives of the WFS will continue indefinitely by scholars and institutions around the world.

International Union for the Scientific Study of Population. The International Union for the Scientific Study of Population (IUSSP) is a nonprofit scientific organization composed of individual members, established in 1928. The membership of the IUSSP represents the users as well as the producers of demographic data. The objectives of this organization are to stimulate research on population, develop interest in demographic matters, foster relations among people involved in population studies and disseminate scientific knowledge on population. The IUSSP has consultative status with the Economic and Social Council of the United Nations and with UNESCO.

The IUSSP holds biennial conferences at which scientific papers are presented at the various technical sessions dealing with demographic analyses and with methodological problems. Some of these sessions have been concerned specifically with civil registration, and many of them have had implications regarding vital statistics. Between conferences, research activities are conducted through technical committees appointed for the purpose. These technical committees also have sponsored scientific meetings on substantive issues.

International Institute for Vital Registration and Statistics. The International Institute for Vital Registration and Statistics (IIVRS) is a nongovernmental, international, scientific organization established in 1974. It is free from any political, commercial or national affiliation. The principal objective of the IIVRS is to encourage the improvement of civil registration of births, deaths and other vital events and the compilation of vital statistics from such registration records. The IIVRS is composed primarily of officials with national or international responsibilities related to civil registration and vital statistics. The IIVRS policies and programs are established by an international Board of Directors.

The program of the IIVRS is designed to be complementary to the activities of other multilateral and bilateral programs in the field. The IIVRS is officially designated as a nongovernmental organization with consultative status with the U.N. Economic and Social Council.

National officials responsible for civil registration or vital statistics in countries that are members of the United Nations or its specialized agencies are eligible for membership in the IIVRS. International agency personnel with related responsibilities are also members. The IIVRS hopes to promote greater national efforts by stressing the utility of the vital records and the data derived from them, and by heightening awareness of needed improvements. The IIVRS concentrates its efforts on the developing world, but it also hopes to encourage cooperative relationships among officials in developing countries and their counterparts in countries considered to have efficient systems.

The IIVRS publishes an annual *Directory of Members* based on information received from countries and agencies; a newsletter, the *IIVRS Chronicle*, which gives brief items on national and international activities relating to civil registration and vital statistics; and a series of *Technical Papers* including descriptions of national systems and expositions on selected technical, organizational and procedural topics. These publications are distributed without charge to members.

In 1983, the IIVRS had 242 national members in 125 countries, as well as 32 international agency officials and technical assistance advisors. The national members are distributed throughout major regions of the world as indicated (number of countries in parentheses): Africa 65 (39); North America 40 (16); South America 34 (12); Asia 47 (27); Europe 41 (23), and Oceania 15 (8).

International programs

There are a number of governmental and nongovernmental organizations engaged in studies and other activities relating to civil registration in various countries. With the possible exception of the U.N. Statistical Office and the WHO, these activities are generally uncoordinated, and the specifics of the various programs are generally not widely known. The mobilization of the existing resources and the coordination of efforts would add greatly to progress in this essentially undeveloped field. Most of all, there needs to be a planned program to accelerate the development and improvement of civil registration and vital statistics in the developing countries. The countries will necessarily carry most of the load, but leadership and assistance of various kinds from international sources will be most useful.

The two principal agencies concerned with demographic and health statistics, the U.N. Statistical Office and the WHO, themselves have an important stake in the development and improvement of the civil registration system. Because of its broad demographic responsibilities, the United Nations has the overall purview of civil registration and vital statistics. The WHO has, because of its health and medical interests, the primary responsibility for mortality statistics on causes of death. This division of labor, though arbitrary, has worked reasonably well. However, because of the difference in national patterns or organization of the civil registration system, some modification of the working relationship between the U.N. Statistical Office and the WHO may be desirable. For those countries where the responsibility for civil registration is in the health ministry, arrangements might be made for the WHO to work directly with the country on an agreed-upon program. Because the working relationship between the WHO and the national health administration has already been well established, this should make for a much more effective means of program development.

To date, most of the joint actions taken by the U.N. Statistical Office and the WHO appear to be on an ad hoc basis. This is satisfactory when planning for conferences and seminars, but when the problem is as massive and intractable as development of registration systems seems to be, a planned program covering a period of years is essential. It is recommended that the U.N. Statistical Office and the WHO plan a 10-year program with the objective of producing usable vital statistics for a national tabulation area for every developing country at the end of the 10-year period. The resulting data need not be for the country as a whole, but for areas where registration completeness is adequate and could serve as a basis for national data.

There has never been a strong continuous program of international activity in civil registration and vital statistics. Nor has there been any sustained interest in the problems of the developing countries in improving their registration system. Several of the regional offices of the United Nations have had advisors in civil registration, but only intermittently has there been a full-time or a part-time high-level post in either the U.N. Statistical Office or the WHO for developing national registration systems and for promoting uniform registration and statistical practices. Without full-time attention and without strong international leadership, it is unlikely that much progress will be made in the development and improvement of civil registration in the developing countries.

It is recommended that an international civil registration and vital statistics program promote the national development and improvement of civil registration and vital statistics through the following means:

- Technical assistance, including the establishment of a cadre of experts on various aspects of civil registration and office procedures
- Training and education of personnel
- Systematic updating of international vital statistics standards
- Convening of conferences
- Promoting methodological research
- Clearinghouse of information
- Regional programs
- Field activities

Technical assistance. The kind of technical assistance to be offered may range from a comprehensive survey of the present status of civil registration and vital statistics and the identification of problems to be solved to short-term assignments on special problems of a specific nature. The former will require a generalist type of expert while the latter will need specialists in specific areas of activities such as legislation, record preservation, certification methods, filing methods, electronic computer installation, and so on. A roster of experts who can provide technical assistance of various kinds to countries, and offer short- and long-term consultation to countries is essential. Priority for technical assistance should be given to countries with greatest promise of success, countries that establish national commissions on civil registration and vital statistics, and those that show indication of providing increased budgetary support for the improvement of civil registration.

Training and education of personnel. The kind of training and education to be offered will differ depending upon the level of activity, that is, local, state or provincial, or national. Those at the national level may involve one or possibly two years of education at some university or demographic training center, whereas the clerks in the local registration offices may require in-service training on the details of registration requirements and procedures, responsibilities of the informants, and how the various forms are to be filled out. The training material for local registration office personnel needs to be developed by the state or provincial registrars in collaboration with the local registrars. These training manuals, in turn, will have to be patterned after the material developed by the national registration office so that there will be uniformity in procedures and practices in every registration unit in the system. The responsibility for training of personnel at the subnational level lies with the country, but outside assistance will be of great benefit to the developing countries. Education of professionals at a demographic center will, in all likelihood, require outside funding in the form of fellowships. Without technically trained national professionals, the imprint of even the best of outside technical assistance will fade away after the completion of the consultative assignment.

Updating of international standards. To achieve international comparability of vital statistics, it is essential that all countries adopt the same definitions, registration practices, classifications, coding procedures and tabulation lists. Most of the present standards in vital statistics have been embodied in the United Nations *Principles and Recommendations for a Vital Statistics System.* The WHO has proposed for international adoption definitions of live birth, fetal death and perinatal death. The WHO is also responsible for the decennial revisions of the International *Classifications of Diseases* used for the classification of causes of death, causes of morbidity and causes of medical care. In accordance with the *Regulations* of the WHO, each member nation of the WHO

is obligated to adopt the International *Classification of Diseases* and the various definitions and disease tabulation lists, unless the country makes a specific reservation concerning the use of the various recommended provisions.

The *Principles and Recommendations* of the United Nations are not binding on countries as are the *Regulations* of the WHO. They are chiefly concerned with the contents of the vital records and vital statistics compilation, including suggested tabulations, but they also touch on civil registration laws and practices. The first issue of the *Principles and Recommendations* was adopted in 1953, and the second edition was adopted in 1970. A third edition is in preparation.

All standards should be reviewed periodically to ascertain if they are still serving current needs. New items of information should be developed to meet emerging social and economic needs. To achieve this, it is suggested that a decennial revision cycle like that of the *International Classification of Diseases* be adopted for updating the United Nations *Principles and Recommendations for a Vital Statistics System.*

Convening of conferences. It is suggested that an international conference be held to consider various revision proposals concerning civil registration and vital statistics practices. Such a conference could also provide a forum for the discussion of major issues of mutual interest in civil registration and vital statistics. The recommendations of such a conference could then be presented to the U.N. Statistical Commission for appropriate action.

The advantage of such an international conference is that it provides for the direct participation of both the civil registration and the vital statistics authorities of the various countries in the development and adoption of standards and criteria for international use. Such participation should have an important effect on the national implementation of the standards. The inclusion of civil registration authorities in an international conference once every 10 years would not only expose these officials to the broader international needs, but would give recognition to the importance of their functions. Many registration officials are not now recognized even nationally, much less internationally.

Promoting methodological research. There are many ways of performing a function but it is not always clear which is the most effective or efficient way. Also, there are measurement problems, such as the ascertainment of the completeness of registration, for which there are no good solutions. Research in methodology will provide answers that will reduce operating costs or make possible the adoption of new techniques. Studies are particularly important where repetitive actions involving large volumes of records take place.

The promotion and support of research into methods applicable to a large number of countries will be of great benefit to the countries. Of particular interest will be demonstration projects using alternative approaches to the solution of problems. The publication and distribution of methodological studies will be an important resource to other countries faced with the same problems.

Clearinghouse of information. Among the present problems of developing countries are isolation, lack of technical information and the absence of trained personnel. An international program responsive to the needs of these countries would have an information center to open up communication within countries and among countries to facilitate exchange of technical information.

In addition to the country activities, there are a number of governmental and nongovernmental organizations carrying on studies and activities related to civil registration. Little is known about these programs. It would be most informative and useful to establish an information clearing center to make a periodic roundup of activity dealing with civil registration and vital statistics. A report on the ongoing activities by organizations should be useful to all concerned.

Regional programs. Even if international agencies were to establish a continuous program of activity to promote civil registration and vital statistics in the developing countries, it will not be possible for them to cope with the wide range of registration problems and issues that exist in various countries in different stages of economic and social development, and with different cultural backgrounds and traditions. One possible way of accelerating the development of civil registration and vital statistics in developing countries is to organize activities on a regional basis so that countries in the same general stage of development with similar cultural backgrounds can work together on common problems. Such action will also serve to open up communication among technicians in the different countries and provide opportunities for them to exchange views on various issues. A regional program will not only focus attention on the common problems of countries in the same area but will make possible the pooling of resources in seeking solutions to these problems.

An effective regional program will require a small but competent staff attached to some kind of regional organization. Such an organization could be the regional commission of the United Nations, a demographic center, or a nonprofit organization established for that purpose. However it is organized, it is essential that the program orientation be mainly on civil registration problems. Should the statistical interests become dominant, alternative methods to civil registration procedures will be sought in an attempt to produce vital statistics quickly. Unfortunately, these expedients cannot ever serve as substitutes for registration data. The diversion of resources to household surveys and other activities will result in the loss of momentum on the ongoing developmental work on the civil registration system and will only delay the day when national vital statistics will become available.

The staff of the regional centers for development of civil registration and vital statistics should be available to all the countries in the area in an advisory capacity. The regional advisor, through his knowledge of activities in various countries, may be able to make referrals to technicians in other countries with experience on the problem in question. He may also be of help to countries in arranging for technical assistance, and in obtaining grants for special projects. The regional office can serve a useful function as the focal point in the area where technical questions may be directed about various activities going on in the countries in civil registration and vital statistics. The regional office can then keep the countries informed through newsletters and field visits. In his capacity as regional advisor and liaison officer for the international agency, he should visit each country several times a year. At least some of these field visits should be in company with the headquarters staff of the international agency.

One of the important needs of developing countries is technically trained personnel. The regional office can be of service by encouraging promising technicians to apply for training fellowships. Also, it can organize regional seminars and training courses for national officials on various aspects of civil registration and vital statistics. It would be particularly useful if the training modules could be arranged so that the national officials could use much of the material to conduct training courses for state personnel in their countries.

The regional centers for the development of civil registration and vital statistics can organize and hold meetings of national officials of civil registration and vital statistics, or of small technical committees, whichever is appropriate, to delineate major problem areas in civil registration and vital statistics, and draw up a program of study to find solutions to these problems. In the conduct of these studies, the countries will be given assignments to study different aspects of the problem. In some cases, various alternative approaches to the problem may be tried. Draft reports will be circulated among the participants for comments. If necessary and where appropriate, committee meetings or regional conferences can be held to iron out differences in viewpoints or to seek a consensus.

Another possible activity is the development of regional views on proposed international standards and recommendations. Usually, such proposals go directly from international agencies to individual countries for comments. The force of these comments will be reinforced considerably if they represent the views of the region instead of a single country. This is especially true of the developing countries. Therefore, it would serve the interests of the countries of the region to convene technical committee meetings comprised of representatives of the countries to discuss the proposals and put forth regional views on the important issues and problems common to the area.

The participation of national officials in regional meetings and conferences will contribute greatly to the professional growth of technicians in the area. Small technical committee meetings focusing on specific issues will have an important impact on the development of civil registration and vital statistics.

Aside from the technical committee meetings, it is suggested that regional conferences on civil registration and vital statistics be convened under the auspices of the regional office at least two times in 10 years. One of these conferences may consider, among other things, the regional proposals on international standards and definitions prepared by the regional technical committee. Possible agenda items for the regional conferences are discussions on various aspects such as legislation relating to civil registration, registration procedures, organization of civil registration and vital statistics systems, coordination of activities within and between the two systems, methods of indexing, storage and retrieval of vital records and certification of vital events, evaluation of vital statistics, promotion of registration completeness, and so on. Many conferences on civil registration and vital statistics have been sponsored in the past by the United Nations, the U.N. Regional Commissions and the WHO. They have been invaluable in seeking solutions to regional problems in civil registration and vital statistics.

It is essential that the regional programs involve the participation of organizations in the region that have evidenced a strong interest in the improvement of civil registration in the countries of the region. For example, in the Africa region, the Union Dounière et Economique de l'Afrique Central (UDEAC) and the Organisation Commune Africaine et Mauricienne (OCAM) have conducted ad hoc seminars for the improvement of civil registration in the Francophone countries in their union. In Latin America, the Inter-American Children's Institute has an active program on civil registration in the countries of the region. The Inter-American Children's Institute seems eminently suited as the central focus of responsibility for the promotion of civil registration in the Latin American countries. If this is not possible to arrange, the civil registration program of that organization should be an integral part of the total regional program.

Field activities. A field program constitutes an important part of an advisory and information service. It will provide an opportunity to offer consultative advice as well as to pick up technical information useful to other countries. Also, it is only through such field visits that the international representative will become familiar with and gain some understanding of the national problems of civil registration and vital statistics and of the needs of the various countries for technical and other kinds of assistance.

A field visit by headquarters staff should be made to each regional office serving the developing countries several times a year. Each such visit should include trips to several countries in the region in the company of the regional advisor so that each developing country will be visited at least once a year by the international program director.

The field contacts will also be invaluable to countries. They will provide an opportunity to obtain ideas and advice on current problems as well as a chance to receive help in writing up requests for technical assistance.

National Programs

It is obvious that there are strong international interests in fostering national civil registration systems that provide comparable data required for international efforts to promote social and economic development. Nevertheless, these international interests must be subordinate to the national needs for demographic data and for the use of registration records for legal purposes within the country.

In improving their systems, countries can reasonably expect some assistance from international agencies in the form of recommended standards and definitions, possibly some financial assistance in establishing demonstration projects and pilot projects, and some short- or long-term assistance from foreign technical experts. However, such assistance will necessarily be of limited character.

Much progress has been made in establishing international definitions and principles for the collection, coding and tabulation of vital statistics. International and regional seminars have been held for the training of vital statisticians, and for the identification of areas needing improvement. On the other hand, very little has been done in establishing appropriate models for the desirable national organization structures and for patterns of cooperation and coordination among the various national ministries concerned or between the central and local authorities. The problem of coordination within the civil registration system and between the civil registration and vital statistics systems is one of the major barriers to the improvement of civil registration and vital statistics in most developing countries.

One step in the direction of coordination is to have periodic conferences of civil registration and vital statistics personnel. Depending on the situation, annual or possibly biennial meetings might be held. The program may be varied, some of the meetings may be held exclusively for civil registration personnel or for vital statistics personnel where problems of special interest are discussed. Others may be joint meetings of the two disciplines. Parts of one or more national conferences may be devoted to preparing national proposals on international standards to be submitted to the regional group for further consideration. Some of the national conferences may be in the form of workshops or training seminars. Others may be for the exchange of views, or for solving specific registration problems that have important implications for vital statistics.

With regard to financial and operating assistance from international agencies, not much can be hoped for. In recent years, international agencies, particularly the UNFPA, have given substantial sums of money to countries for periodic census operations and for ad hoc sample surveys. However, civil registration is a different matter since this process is not a one-time effort but a continuing governmental function deeply imbedded in regular governmental activities. International funds are usually not available to support ongoing national activities of this type.

International assistance in the form of long- or short-term technical assistance experts is often available from intergovernmental or bilateral agencies. However, such experts are of limited value to a country seeking to improve its own system. The organization and operation of a civil registration system does not follow any uniform pattern, and the needs and possibilities of one country are quite distinct from those of another. International experts with a broad and flexible view of what might be useful in various countries are rare indeed. An internationally recruited expert may be an expert with regard to the system in his own country but quite ineffective in developing ideas and strategies for improving civil registration in another country with a different level of resources, a different pattern of national organization and different cultural or geographic features.

This comes down to the point that if a country is proceeding to improve its civil registration and vital statistics system, the responsibility and the leadership for this activity must lie with the

country itself. Outside consultants may be helpful but the country itself must develop its own plan of action that fits in with its own requirements and potential. To assist in the development of such a strategy, a list of possible actions that might be considered is given below. By no means are all of these items appropriate or necessary for any one country, but the list provides a number of possible activities, a selection of which could form the basis for a long-range national plan of action.

Assessment of the problem and use of available resources

The process of civil registration and the use of its records for both legal and statistical purposes is based on an extended sequence of operations by governmental units throughout the national territory, which often involve more than one national ministerial jurisdiction. In different countries, different parts of this sequence of operations may be strong or weak. The assessment of the problem in any country is clearly an early step in developing a national strategy for improvement. In some instances, this assessment may involve consultations with other countries and external experts to get a comparative view of the national situation.

Investigation of the national resources that can be directed to an improvement program and of the financial and technical assistance that might be obtained from multilateral agencies (United Nations, WHO, and so on), from bilateral agencies (U.S. Agency for International Development, Canadian International Development Agency, Swedish International Development Authority, and so on) from professional associations (such as ISI, IUSSP, IIVRS) and from private foundations (Ford Foundation, Rockefeller Foundation, and so on) should be undertaken.

Concurrent with the above steps, a selection of feasible activities from the points listed below and other efforts appropriate to the national situation to comprise an integrated strategy for progress should be made.

General and interministerial activity

Formulation of a unified plan for the national reform of the civil registration and vital statistics system based on assessment of the existing systems is essential. The plan should separate what is possible now and what should be left to the future, and should concentrate on problems and solutions that promise the greatest possibility of success. It should be part of the strategy to improve civil registration by geographic areas so that usable birth and death statistics will become available within the period covered by the plan.

Because of the national importance of the problem, it has been proposed that an ad hoc national commission at the highest ministerial level be appointed to consider the problems and prepare a plan of reform of the civil registration and vital statistics systems. The national commission should include representatives of the administrative departments or ministries with substantial interest in civil registration and vital statistics. In countries where civil registration is the responsibility of autonomous state or provincial governments, there should be a representative of the state or provincial registrar on the national commission. The national commission should receive the highest political and administrative support so that it can discharge its responsibilities.

The unified plan for the national reform of civil registration and vital statistics systems should include, inter alia, the following steps:

- Define the objectives of the systems, including goals for development and improvement.

- Designate national agencies responsible for civil registration and vital statistics. Where no responsible agency for civil registration exists in the national government, establish such a national ministerial responsibility for the nationwide coordination of civil registration.

- Establish means of coordinating civil registration and vital statistics, possibly through a permanent advisory committee following the pattern for national committees on vital and health statistics recommended by the First World Health Assembly.

- Review the authority and responsibility of national, state or provincial, and local registration offices in the administrative chain involved in the flow of registration records, and make necessary changes.

- Review and update national registration laws for conformity with international recommendations on registration and statistical procedures, and give legislative authority and responsibility to the various agencies involved. The laws should be as simple and general as possible and yet enable the agencies to function efficiently. One way to accomplish this is to incorporate in the law the immutable provisions of registration and statistical procedures and write into regulations the administrative requirements that may be revised at a later date because of change in conditions. This use of regulations that have the same force as laws is advantageous in that revisions of the law are difficult to make, whereas modifications of regulations may be made simply as an administrative procedure.

- Formulate a 10-year plan for achieving the goal of producing usable national vital statistics. Develop a strategy for improving civil registration area by area, concentrating available resources, and a strategy for establishing a national statistical tabulation area.

- Outline the organization, staffing and budget needed for the program.

Activities primarily the responsibility of civil registration authorities

- Implement a unified plan for national reform of the civil registration system.

- Conduct a systematic study of each facet of civil registration such as registration procedure; fee system; penalty for late filing; transcription of records; filing and preservation of records; certification procedures and the whole administrative organization of the system, including location of the primary registration office, and the identication and correction of deficiencies in the system.

- Experiment with innovative registration procedures and methods and with office procedures to increase the efficiency of various operations.

- Make improvements in the flow pattern of registration documents from the local registration offices to the central office.

- Make improvements in the organization, maintenance and retrieval of records—centrally and in the field.

- Make improvements in employment standards, incentives and distribution of work load. Develop and conduct training courses for registration personnel.

- Arrange for use of local auxiliary resources for registration such as hospitals and health centers.

- Establish a public information program on responsibility for registration, incentives/penalties, uses and value of individual records and issuance of certifications of vital records. Create public awareness of the need for registration of vital events.

- Promote the use of birth registration records as proof of age, relationship, citizenship, and so forth by other government programs, for example requiring a birth certificate as proof of age for enrollment in grade school, for social security pensions and for food rationing.

- Establish national and state field services to maintain uniformity of registration practices in and among the various states or provinces.

- In collaboration with the vital statistics authority, study the quality of information reported on vital records and the ways and means of improving the accuracy of reported information, including more complete and accurate statements on causes of death.

- Study the relationship between the civil registration system and the population register if one exists or is under consideration. Because vital records are essential for the updating of population registers, an efficient and timely notification method is needed.

- Develop a system of unique birth registration serial number. This may also serve as a national identity number.

Activities primarily the responsibility of vital statistics authorities

- Implement the unified plan for national reform of the vital statistics system. Institute a tabulation area for compilation of national vital statistics, starting with the geographic areas that meet the criteria of completeness and quality of data. As more areas qualify, include them in the national tabulation area.

- Establish and exercise tight control of records flowing from the local registration offices to the central statistical office.

- Collaborate with registration authorities in securing the improvement of the quality of statistical items on the registration records.

- Review tabulation plans and make needed revisions to bring them into conformity to the greatest extent possible with national needs and international recommendations.

- Plan and conduct data processing operations to ensure timely production and distribution of monthly and annual vital statistics reports.

- Develop analytical capabilities to increase the usefulness of the statistical output by providing meaningful interpretation of data for national planning for social and economic development. Apply statistical techniques for the management of incomplete data.

- Contribute to the improvement of intercensal and postcensal population estimates to provide the best denominators for calculating vital rates.

Participation in regional and international activities

Aside from methodological and analytical studies conducted for national purposes, there is need for participation in studies organized along regional and international lines. Because of their knowledge of data collection and processing procedures and their limitations, officials of national agencies should collaborate in such studies.

As the quality of vital statistics improves, there will be more and more opportunities for national agencies to participate in analytical studies involving various countries in the region or on a worldwide basis. These studies of trends and differentials will contribute to the knowledge of determinants of fertility and mortality.

There is need for national participation in the development of international definitions of vital events and characteristics of those events, model laws governing civil registration, registration requirements and practices, uniform statistical practices and classifications, and of minimum international statistical tabulation requirements. The testing of methods, procedures and forms can be conducted only at the national and local levels so that national participation is essential in the development of the various facets of civil registration.

The data and experience required to understand the need for the various revision proposals are in the national and local civil registration and vital statistics agencies. Also, because the national agencies will eventually have to implement the international recommendations on definitions, practices, and so on, their participation at the various stages of development of the international proposals will result in better national acceptance.

Regional seminars and international meetings and conferences will broaden the horizons of the national participants and will have an integrating effect on the participants of the various countries in attendance. These discussions will also be an important learning process for the regional and international personnel who may not have first-hand experience with problems of national civil registration and of vital statistics data processing.

Plan of Action

It has been emphasized throughout the above discussions that reliable vital statistics based on an efficient civil registration system are essential data for economic and social development. The creation and maintenance of such a system of civil registration and vital statistics is a national responsibility, and each country must assume the primary burden of meeting the costs involved. This does not preclude the use of technical assistance and of training and other assistance from bilateral or multilateral agencies.

At the present time, virtually every country in the world has legislation on compulsory registration of births and deaths, and the infrastructure for the registration of these vital events. The statistics derived from the registration system have been invaluable for national planning for social and economic development in the developed countries. In the developing countries, there is a special need for vital statistics, but registration data are often incomplete and of limited usefulness. The prospects of securing complete nationwide registration in each developing

country in the foreseeable future are not good. However, it would seem feasible to produce useful vital statistics for every country in the world in the next 10 to 15 years with the present state of technical knowledge if available resources can be mobilized to follow a coordinated plan of action. Any number of specific plans of action can be drafted and, while these would differ in detail, it would seem that several main points are essential.

In the first place, a plan of action should be built around activities that have a good possibility of success. The plan of action should also envisage a constant and sustained effort. Within this general framework, the following points are suggested:

- Allocation of more international resources.
- Better coordination of international assistance activities. Establishment of a cadre of recognized international experts in this field.
- A unified national plan for reform.

Allocation of more international resources

Although it constantly has been stressed that national improvement of civil registration and vital statistics is a national responsibility, the substantial interest of the international agencies should not be overlooked. Data from these systems are essential for national purposes, but they are also needed for the planning and evaluation of international development and population programs.

Over the years, international programs—bilateral and multilateral—have expended hundreds of millions of dollars to support census and survey projects to provide data for national and international use. The amount of money allocated to the improvement of the more continuous civil registration systems has been trivial by comparison.

In recent years, there has been a substantial cutback in international technical assistance for data collection activities. However, major international data collection support activities such as that for the WFS and the 1980 round of population censuses are now coming to an end. Therefore, it may now be opportune to reallocate some of these resources to civil registration and vital statistics improvement projects.

A full-time international program for the promotion of, and assistance in, the development and improvement of national civil registration and vital statistics is proposed. This program includes the following:

- Technical assistance
- Training and education of personnel
- Systematic updating of international vital statistics standards
- Convening of conferences
- Promoting methodological research
- Clearinghouse of information
- Regional activities
- Field activities

An essential aspect of any adequate plan of action is the provision of more international resources for civil registration improvement. More resources will be needed not only for the United Nations agencies but also for the various regional offices. These regional offices are closer to the

cultural, economic and geographic factors that impinge on any national improvement program, and they are likely to understand the nature of the assistance that would be most useful to a country.

Better coordination of international assistance activities

The spectrum of agencies that have international activities includes a host of multinational agencies, regional agencies, bilateral agencies, nongovernmental organizations and other types of public and private organizations. Of these, only a few have programs directly related to population. Of this group, perhaps no more than a dozen have direct interest or programs in projects concerned with improving national civil registration and vital statistics—essential data for the measurement of population change. These few programs are scattered widely among various agencies. Most activities originate with the work of the United Nations in the UNFPA, which supports work done in this field by the U.N. Statistical Office, the WHO and other organizations.

At the international level, the U.N. Statistical Office and the WHO have responsibilities for the development of civil registration and vital statistics. Although the U.N. Statistical Office has overall international responsibility for vital statistics, responsibility for this area is in the national health administration in a number of countries. Therefore, the WHO should be given responsibility for promoting improvements in registration and vital statistics in these countries.

Because of such overlapping areas of responsibility, there is need for focus of international leadership in the U.N. Statistical Office and the WHO, and for a planned coordinated program over the next 10 to 15 years that would embrace the interests of all agencies concerned. One phase of this program should deal with technical assistance to countries and training to be provided by international agencies. The other phase should be concerned with the development of international standards with respect to definitions, classifications and procedures, and the periodic updating of these standards. It is suggested that there be a systematic scheduled plan of international, regional and national conferences to provide a mechanism for the review and revision of these programs and standards, and which will also provide an opportunity for discussion of mutual problems and interchange of technical information.

A recognized cadre of international experts

A civil registration and vital statistics system differs fundamentally from other demographic data collection systems. The population census and the demographic survey each have a basic design and method of operation that are essentially the same from one country to another, although there are major differences in content, sampling considerations, enumerator training programs, tabulation plans, and so on. However, a census or survey expert in one country can usually qualify as an expert in another country. This is not the case for civil registration and the derivation of vital statistics from registration records. A person might be a top registration expert in his own country but be quite ineffective or even counterproductive as an advisor to another country.

This is so because the civil registration system serves two entirely different national purposes—statistical and personal identity. This situation results in a maze of differing laws, organizational patterns and national priorities. In addition, civil registration is deeply imbedded in local governmental administration processes and, being dependent on cooperation from local populations and institutions, it is more affected by cultural, geographic, ethnic and other variations in the national structure.

For this reason, it is important that persons used as consultants in this field have a broad exposure to variations in how things are, or might be, organized and a mature judgment as to the appropriate action to recommend in any situation.

The number of people with this sort of background is very limited, and any plan of action should include the continuing maintenance of an open roster of a qualified cadre of experts.

A unified plan for national reform

While the work of international agencies is essential for the worldwide improvement of civil registration and vital statistics, the basic responsibility rests with the nations themselves. As outlined above, there are a great variety of possible national activities, but the choice of those that are most pragmatic and within the national cultural and economic possibilities of any country must rest with each country itself.

Many of the past national and international activities for the improvement of civil registration have failed or have been only partially successful because such activities were directed at only one small segment of the national problem. Also, there has been a lack of continuity of efforts, that is, no sustained program has put into general practice the lessons learned.

Attempts for change made so far in the area of civil registration show that there is much bewilderment about how to proceed. Some efforts have been directed at the problems of registration at the local level, others at the derivation of national vital statistics from registration records, others at the coordination of the various national agencies responsible for different parts of the whole civil registration and vital statistics process. These partial solutions seldom result in an improvement in the effectiveness of the total system—improving the procedures for establishing personal identification and family relationships or in improving vital statistics so that they are useful as one of the bases for national economic and social planning.

In place of these partial reforms, single national structural reform is suggested. The careful planning of that one reform in all its aspects is considered essential.

The Latin American Committee that was appointed to study these problems points out in its report the need for a unified plan *(The National Importance of Civil Registration and the Urgency of Its Adaptation to a Modern Society)* as follows:

> Modernization of a complex organization such as a civil registration system must be carefully planned. Strategy should be planned to ensure success. The disciplines and sectors involved and concerned are many. It seems indispensable that the reforms include modifications to civil law or to those laws which include the substantive provisions governing the organization and operation of civil registration; the vital statistics system has points of view to express and interests to protect. Therefore, they should also participate in the process; the agencies and officials in charge of economic and social planning policy who constantly require demographic information, should also be included. Insofar as there exists a system of personal identification or one is planned, officials responsible for that sector should also participate.

The report goes on to propose the appointment of an ad hoc national commission at the highest political level to take the responsibility for planning the strategy of modernizing the organization and operation of the civil registration and vital statistics systems. This commission should include representatives of all the interested sectors of public administration. A commission

at the highest ministerial level is justified by the political and administrative support that the commission needs for compliance with its functions, so that the study and proposal for change would have the soundest and broadest possible support.

INTERNATIONAL PROGRAM FOR ACCELERATING THE IMPROVEMENT OF VITAL STATISTICS AND CIVIL REGISTRATION SYSTEMS[1]

United Nations Statistical Office
World Health Organization
International Institute for Vital Registration and Statistics

Introduction

There is universal recognition of the need for national vital statistics and civil registration systems (VS/CR). Virtually every country in the world has enabling legislation to register vital events, that is, live births, deaths, fetal deaths, marriages, divorces, etc., occurring within its territory. Also, almost all countries have a government unit responsible for the compilation of vital statistics based on registration records.

Nevertheless, the present vital statistics and civil registration systems in many countries are not able to produce regularly complete and accurate vital statistics. Indeed, the VS/CR systems suffer from lack of funding and high-level support and are on the verge of becoming dormant in a number of countries. The urgent need, therefore, is a joint and special effort by countries and international organizations to improve vital statistics and registration systems.

In the past three decades, because of the immediate need for vital statistics for monitoring population trends and evaluating social and economic development programs, there was a shift in emphasis away from efforts to improve VS/CR systems. Instead, data from ad hoc demographic surveys and population censuses have been used to provide estimates of birth and death rates. Frequently, indirect demographic methods have been used to estimate birth and death rates.

In some countries that lack good civil registration data, multiround surveys are now being used to collect vital statistics. These surveys have highlighted registration problems and have generated a demand for more detailed geographic data. Since these demands can well be met only from direct sources such as civil registration systems, the increased awareness of this situation and flow data needs re-emphasize the importance of promoting and obtaining the financial and administrative support required for the improvement of the VS/CR systems.

For countries without any data at all, estimates obtained from survey and population census data fill a genuine but limited need. However, such estimates fail to provide a continuous flow of vital statistics; they do not provide needed geographic and demographic detail, or medical and health characteristics of vital events; and they are rarely of sufficient accuracy to allow measurement of change in vital rates. More importantly, the efforts to provide estimates of vital rates have diverted attention and resources away from the basic problem of improving the national VS/CR systems so that they eventually yield a permanent and continuous flow of complete and reliable vital statistics at all geographic levels.

Over the years, the international community has made efforts to develop and improve VS/CR systems. This support included the provision of technical assistance, advisory services, fellowships, training, and financial assistance for regional and country projects. Methodological support for VS/CR systems included, for example, the publication of the *Principles and Recommendations for a Vital Statistics System* and the *Handbook of Vital Statistics Systems and Methods* by the United Nations. These publications have resulted in a great deal of progress in

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[1]This article is an edited version of the original document prepared in 1989.

international comparability in terms of concepts, definitions, and data presentation. Despite the progress already made, a great deal still remains to be done to improve international comparability, coverage, and quality of the data.

Many of the country projects supported by international agencies in the past were concerned with establishing model registration areas with the hope that they would be extended to the rest of the country. Unfortunately, there has been little carryover of experience from these projects to other areas of the country. Thus, the demonstration areas and pilot projects have had little impact on the VS/CR systems.

The importance of upgrading the existing systems of VS/CR was stressed by the participants of seminars and workshops on VS/CR held in Asia and the Pacific, Africa, and the Caribbean over the past 5 years. The urgency was underscored by the fact that unless such reorganization and strengthening were achieved in the course of the next decade, the effective planning, implementation, and monitoring of a number of development programs and strategies at both the national and international levels would be jeopardized. To achieve such improvements will require a carefully planned program and concerted efforts on the part of countries with outside technical support.

Therefore, the present International Program is aimed at encouraging countries to undertake actions to remove the constraints that block the development of their national VS/CR systems. Countries would be expected to deal with specific problems existing in the current VS/CR systems of the country as revealed by their own assessment of their situation. Toward this end, the International Program will work to bring together and focus the technical and financial resources of international organizations, bilateral agencies, and interested technical bodies. The work will be done by the countries, with limited guidance provided by the international and regional organizations. The countries will also be able to seek technical and to some extent financial support from international agencies to assist their efforts in effecting needed VS/CR reforms over the coming decade. It is envisaged that the International Program will assist countries in their search for funding as well.

This program is conceived as a joint initiative of international agencies, regional bodies, and nongovernmental organizations. The emphasis will be on national determination of goals and strategy for improvement of each country's VS/CR systems. National authorities at the highest level of the government, often involving several ministries, will be encouraged to give their support to the national improvement program. Such support and the active involvement of high-level national officials in program planning will be essential to the success of the program.

Uses of Vital Statistics and Civil Registration Systems

An important function of a vital statistics and civil registration system is to serve as a continuous source of statistics on births, deaths, fetal and infant deaths, marriages, and divorces to monitor the natural growth and changes in structure and distribution of the population. It also provides certificates on registered vital events occurring to individuals to meet legal and administrative requirements of a country.

The birth, fetal death, and infant death records provide the basis for public health programs for postnatal care of mother and child, for programs of vaccination and immunization, for assistance to the physically handicapped, and so forth. Because records include the causes of death, they are useful for epidemiological purposes as indicators of the existence of infectious diseases requiring immediate control measures, as well as for the identification of health problems. Vital registers may also be used in public safety, accident prevention, and crime prevention programs; and in social security, military service, and electoral rolls.

Marriage records may be used administratively as proof of establishment of a family or household and hence to initiate family-benefit programs related to health, housing, etc. They also serve to clear administrative files on programs dependent on marital status, alimony payments, etc. Divorce records serve similar administrative purposes. All these are potential uses of civil registration data that the International Program will seek to enhance.

Other important uses of continuous vital statistics derived from vital records lie in planning for economic and social development. The two components of natural growth of the population—births and deaths—determine the trend and rate of population growth at the national and subnational levels. Estimates of population size as well as population projections can be made on the basis of reliable vital statistics. Such population estimates and projections, for example of school children, childbearing women, the elderly, etc., will provide a useful basis for social and economic development planning and policies and their periodic evaluation and monitoring.

The rapid growth of the population in many countries became a matter of serious concern in the postwar period and gave rise to organized national programs of family planning. For effective implementation of these programs, annual fertility statistics classified by various social and demographic characteristics and by detailed geographic divisions are needed for understanding the situation and thereafter for planning, administration, and evaluation of the programs.

The earliest uses of vital statistics have been in the field of health to delineate major public heath problems, to design health programs, and to evaluate health progress. Statistics on causes of death have been particularly useful in identifying the diseases of public health importance, and analysis of trends of mortality associated with these diseases and the characteristics of persons dying from them is particularly useful in planning, conducting, and evaluating control or prevention programs.

The commitment by Member States of WHO to achieve Health for All by the Year 2000 has given rise to further efforts aimed at the reduction of inequalities. Further, a number of population groups have been identified for special attention, among them women and children, the disabled, the elderly, migrants and refugees, minority groups, and others. Thus, the need for data to support the analyses of the health situation extends not only to local area needs but to the needs of various population groups.

Of particular importance in relation to women's health is the problem of maternal mortality, an area in which WHO, UNFPA, and UNICEF have been intensifying their efforts. The exact magnitude of the maternal mortality problems is unknown, as in many developing countries the causes of death are either not stated or are stated by lay persons. Nonetheless, it has been estimated that worldwide at least 500,000 women die each year from causes related to pregnancy and childbirth.

Child health is a problem of special importance in developing countries. Deaths among children under 5 years have been estimated to account for about one-half of all deaths occurring in many developing countries. The exact proportions at both national and local levels are unknown owing to the problem of large omissions in the civil registration system of deaths occurring at an early age. Much can be done to improve the recording of deaths and their causes in the civil registration system.

To meet the data needs of these specific concerns and their focus on special population groups, complete, accurate, and current vital statistics at the national and small geographical area levels are essential. Civil registration is the only means of providing flow statistics at the required geographical levels and the principal means of producing statistics on maternal mortality and characteristics of the child and its mother, so that more in-depth studies on child and infant

mortality can be made. Awareness of maternal, infant, and child mortality has increased everywhere, including the least developed countries. Much of child mortality is preventable by means of currently available tools and measures.

In the WHO Strategy of Health for All by the Year 2000, a number of minimum health goals have been established in terms of indices like average life expectancy at birth, infant mortality rate, and childhood death rate, which require accurate death, birth, and population statistics. Therefore, to plan, monitor, and evaluate health strategies ranging from disease prevention and control to health promotion, reliable vital statistics are indispensable tools for the country as a whole as well as for its administrative subdivisions. They are of particular importance in local areas, where special population and health service programs are being implemented. Under the emerging new directions of population and health service programs, countries are facing an increasing need for vital statistics.

Objectives of the International Program

The main objective of the International Program is to mobilize international and bilateral efforts, both technical and financial, to promote, support, and encourage developing countries to undertake meaningful and sound reforms to accelerate the development and improvement of their vital statistics and civil registration systems. With improvement, the VS/CR systems will become a sound component of the sociodemographic data base needed for population and development programs. These data bases will be better able to respond to the ever-growing need for vital statistics and vital records for the planning, administration, and evaluation of various programs of family planning and health, especially maternal and child health.

For program purposes, countries may be divided into groups, such as the following:

- Countries that have the best prospect for a rapid attainment of complete birth and death registration, say in a period of 5 years. These countries currently either have 80 percent or higher registration coverage of births and deaths or have established most of the basic infrastructures for complete VS/CR systems but these systems have significantly deteriorated over the years because of poor performance of personnel, insufficient budget, and lack of technical guidance.

- Countries that have a good prospect for a rapid attainment of complete birth and death registration, say in a period of 10 years.

- Countries with poorer prospects for a rapid attainment of complete birth and death registration. VS/CR systems in these countries are in an early stage of development, e.g., the least developed countries. In these countries, the VS/CR systems face many procedural, infrastructural, and financial problems.

For the first group of countries, technical and financial assistance, channeled through the International Program, will lead toward the consolidation of a comprehensive civil registration system from which complete and accurate vital statistics can be derived on a permanent basis. For the second group, the objective of the Program is toward reaching complete coverage and production of vital statistics on a regular basis. For the third group, the objective of the Program is to help countries establish solid technical and legal bases and to outline the necessary infrastructure for universal registration and vital statistics compilation. The attainment of full

coverage for the third group of countries may not be possible even 10 years from now. But immediate benefits can be derived in providing a solid foundation. Even data for parts of the country can provide a good starting point for implementation of health and family planning programs.

The Program offers WHO a unique opportunity to further enhance specific components of vital registration that are more directly relevant to the health situation and the assessment of trends. In particular, the recent initiatives in WHO to evaluate and promote further development of information on causes of death as basic statistical support for health strategy implementation would be incorporated into this program. Therefore, the inclusion of cause-of-death statistics will be an integral part of the development of VS/CR systems to yield relevant and reliable mortality information.

The International Program would assist the countries by (1) providing guidelines for the self-assessment of both the existing country systems and ways of improving the systems; (2) providing guidance for formulating a national plan of action; (3) disseminating and assisting in the preparation of handbooks and technical documents for use in the country systems; (4) operating a clearinghouse of information on VS/CR systems that would be responsive to the needs of countries; (5) providing technical advice to countries at various stages of country project development; (6) supporting and carrying out training activities to increase the skills of nationals; and (7) assisting countries to obtain other necessary technical cooperation for proposed activities and projects and related support of national organizations.

Birth and death registration and the resulting statistics will be stressed as priority issues in all countries. Registration of marriages and divorces and their statistics would be considered according to specific country needs and priorities.

Main Features of the International Program

This program shifts the emphasis of international technical cooperation away from pilot studies and demonstration area approaches to solving specific problems existing in the current vital statistics and civil registration systems of the country. It is hoped that the various international, bilateral, and private agencies will make changes in their guidelines on assistance so as to suit the new direction given by this program. The role of this program is to step up its support for projects aimed at improving VS/CR systems and to provide limited technical guidance in doing so. It is envisaged that there will be broad support for the country projects from the various multilateral and bilateral agencies as well as from the country itself. A prerequisite to country participation in this international program will be a positive commitment by the country to invest staff, time, and resources. The commitment, in the first phase of the program, will be the willingness of the government to prepare an assessment of the current systems in accordance with a suggested outline by developing a plan of action and by showing intent to implement necessary reforms. Because this commitment requires the allocation of funds, political support at the highest government level will be needed.

Another feature of this international program is that it will take into account the present stage of development of the VS/CR systems in a country so that specific problems can be prioritized for action. The goal setting, the short-, medium-, and long-term objectives, as well as the type of technical assistance needed, will be assessed to suit the needs of each participating country. It is again stressed that a requirement for participation in this program will be a strong national commitment to invest time and resources.

In the process of implementing the reforms for the country systems, the program will make sure that those changes lead neither to the collapse of the current systems nor to the interruption

of their outputs. In other words, only realistic measures with high probability of success will be implemented.

For the reforms to be successfully implemented, the program must be responsive to the needs of data users as well as producers. For this purpose, it is essential that the major users of vital records and vital statistics and persons responsible for maintaining civil registration and vital statistics systems be brought together at an early stage of development of the country program. To promote the active involvement of users and producers, countries may want to set up a high-level advisory committee that would meet periodically to review the operation of the VS/CR systems.

The initial assessment undertaken by each country participating in the program will provide a baseline from which to measure change. Subsequent periodic assessments will provide measures of improvement and will identify problem areas requiring further action. The assessment exercise must thereafter become a part of the regular work within the systems to monitor their performance.

The Statistical Commission has, at its twenty-fifth session held in 1989, expressed its support for the present initiative toward accelerating the improvement of civil registration and vital statistics systems of developing countries. The program will also seek endorsement, participation, and cooperation from a wide range of multilateral and bilateral donor agencies and interested organizations and institutions.

Further, it will seek the endorsement of international organizations of lawyers, proponents of human rights and children, women, refugees, and displaced population, etc. that have a strong interest in the availability of vital records and statistics in developing countries. If these international associations will mobilize their resources to support the national initiative in their countries, this effort will go a long way in effecting major reforms toward accelerated improvement of VS/CR systems.

Program Components

The substantive program components are as follows:

1. Prepare appraisal forms to be used by countries in assessing the current status of their VS/CR systems.
2. Prepare an outline for country reports on the assessment of their Vital Statistics and Civil Registration Systems.
3. Canvass countries to determine their commitment to actively pursue a program for the accelerated improvement of their VS/CR systems.
4. Distribute the appraisal forms, outline of country reports, and guidelines for formulating a national plan of action for effecting reforms. Assist countries, as needed, in preparing a national plan of action.
5. Assist countries in obtaining necessary funds to support national projects.
6. Identify, acquire, and disseminate existing handbooks, manuals, and technical reports covering various aspects of operating VS/CR systems. The international program will also identify, prepare, and disseminate additional handbooks, manuals, and technical reports covering topics for which there are no existing examples. Topics that may be covered in the handbooks, manuals, or technical reports include areas such as the following:

Laws and regulations concerning VS/CR
Organizational requirements for CR systems
Organizational requirements for VS systems
Duties and procedures for the local registrar
Motivating the public to register vital events
Guidelines for data processing and computerization of VS/CR systems
Releasing vital records to the public (including protection of confidentiality and protection against fraudulent use of documents)
Procedures for storage and retrieval of vital records
Instruction regarding vital statistics
Lay reporting of cause of death
Use of vital records in population registers and individual identification systems

7. Prepare and disseminate an additional series of reports to help acquaint national planners, administrators, and researchers with the main uses of vital records and vital statistics, particularly for family planning operations and evaluation, social planning and administration, evaluation of maternal and child health programs, and other health and population programs.

8. Conduct regional and/or national training courses and workshops.

9. Operate a clearinghouse of information and materials about VS/CR systems.

10. Provide necessary technical advice and other assistance to countries at various stages of the project implementation.

11. Periodically assess global, regional, and national improvement of VS/CR.

To participate in the program, each country needs to do the following:

1. Conduct an appraisal of its VS/CR system.

2. Prepare a country report based on the appraisal and prepare a draft plan of action for the accelerated improvement of the VS/CR systems that takes into consideration the needs of major consumers of data. These activities require the involvement and participation of demographers, statisticians, health, legal, and administrative experts, family planning staff, etc. All need to participate in country assessments, in the development of the national plan of action, and in supporting activities relating to data improvement and data production.

3. Prepare a final plan of action that addresses reforms and strategy. Assess the needs, if any, for both technical and financial external assistance.

4. Help implement the plan of action, monitor its progress, and advise adjustments in the plan and its implementation as required.

5. Help transmit periodic reports on work progress to the international agencies sponsoring the country program.

6. Evaluate periodically the effectiveness of the country project activities.

If need be, short-term international assistance may be provided under this program to assist countries in the above activities.

Institutional Arrangements

The International Program for Accelerating the Improvement of Vital Statistics and Civil Registration Systems, as outlined above, will assist developing countries to upgrade substantially their vital statistics and civil registration systems. It will endeavor to mobilize support from organizations of the United Nations system as well as from bilateral agencies and private organizations and to undertake coordination with a view to securing maximal use of financial and technical resources for the strengthening and improvement of national VS/CR systems.

The United Nations Statistical Office (UNSO), in collaboration with the United Nations Department of Technical Cooperation for Development (DTCD), will act as the focal point in promoting the strategy for accelerating the improvement of VS/CR systems. The UNSO will be substantively responsible for the implementation, coordination, and monitoring of program activities. Further, it will be joined by the World Health Organization (WHO) and the International Institute for Vital Registration and Statistics (IIVRS)—the cosponsoring institutions that will be closely involved in the planning and carrying out of the program. For this purpose, UNSO will assign one of its staff members to carry out the program.

The regional commissions of the United Nations will also be closely involved in the planning and carrying out of program activities and will provide regional advisory services and serve as resource centers for the promotion of the program. A similar role will be played by the regional offices of WHO in support of advisory and training activities for health personnel. WHO will also participate in preparing manuals for the collection of cause-of-death information. Further, the United Nations regional commissions and regional offices of WHO will cooperate actively in organizing and conducting regional and national workshops.

RECOMMENDATIONS FROM REGIONAL CONFERENCES AND SEMINARS ON CIVIL REGISTRATION AND VITAL STATISTICS[1]

International Institute for Vital Registration and Statistics

Introduction

Over the years, a number of meetings and conferences on civil registration and vital statistics have been held in different regions of the world under various sponsorships. Almost all of them have resulted in recommendations for the improvement of civil registration procedures and methods. This report is a compilation of those recommendations, in summary form, from 15 conferences that took place between 1954 and 1987. Although there are some regional differences, there is considerable overlap in the basic problems facing developing countries, such as incomplete registration coverage and poor quality of collected information. The common deterrents to improvement are inadequate funding and the lack of understanding and appreciation by the public of the importance of civil registration. A list of the conferences is presented first, followed by the recommendations classified under various subject headings. For each subject, the conferences whose opinions are represented are specified, but recommendations are not linked individually with the conferences that made them.

Conferences and Other Meetings Represented

The following meetings on civil registration and vital statistics practices are covered in this compendium.

1. First Inter-American Conference on Civil Registration, Santiago, Chile, 1954. Organized by the Civil Registration and Identification Office, Chile, the Statistical Office of the United Nations, the United Nations Technical Assistance Administration, the World Health Organization and the Institute of Inter-American Affairs.

2. African Seminar on Vital statistics, Addis Ababa, Ethiopia, 14–18 December 1964. Organized by the United Nations Economic Commission for Africa, Bureau of Technical Assistance Operations and the Statistical Office of the United Nations.

3. Second Inter-American Conference on Civil Registration, Lima, Peru, 1964. Sponsored by the Government of Peru, the United Nations Bureau of Technical Assistance Operations, the Statistical Office of the United Nations, the United Nations Economic Commission for Latin America, the United Nations Regional Center for Demographic Training and Research in Latin America, the Pan American Health Organization, the Inter-American Statistical Institute, the Inter-American Children's Institute and the Inter-American Civil Registration Association.

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[1]This article was abstracted from IIVRS Technical Papers No. 18, September 1982; and No. 34, November 1988.

4. Seminar on Civil Registration and Vital Statistics for Asia and the Far East, Copenhagen, Denmark, 1968. Organized by the Economic Commission for Asia and the Far East in cooperation with the Government of Denmark, the Statistical Office of the United Nations and the United Nations Office of Technical Cooperation.

5. United Nations Working Group on Current Demographic Statistics, Bangkok, Thailand, 9–14 June 1975. Organized by the United Nations Economic and Social Commission for Asia and the Pacific and the Statistical Office of the United Nations.

6. Meeting on Strategies for Improving Civil Registration, Montevideo, Uruguay, 1977. Sponsored by the Inter-American Children's Institute, the Pan American Health Organization, the Statistical Office of the United Nations, the U.S. National Center for Health Statistics and the U.S. Agency for International Development.

7. UDEAC[2] Ad Hoc Commission on Civil Status, Libreville, Gabon, 1978. Sponsored by the Regional Center for the Study of Population.

8. OCAM Seminar on the Improvement of Civil Registration, St. Louis, Mauritius, 1979. Sponsored by the Organisation Commune Africaine et Mauricienne and the U.S. National Center for Health Statistics.

9. OCAM Seminar on Organization of Organizers of Personnel Systems for Civil Registration, Cotonou, Benin, 26 May to 4 June, 1980. Organized by the Organisation Commune Africaine et Mauricienne.

10. Meeting of the Working Group on Civil Registration Systems and Vital Statistics Collection in Africa, Nairobi, Kenya, 1980. Organized by the United Nations Fund for Population Activities and the Economic Commission for Africa.

11. Iberoamerican Conference on Strategies for Improvement of Civil Registration and Vital Statistics Systems, Lima, Peru, 1980. Organized by the National Office of Statistics of Peru and the U.S. National Center for Health Statistics.

12. Pacific Seminar on Civil Registration and Vital Statistics, 30 April to 6 May 1985, Apia, Western Samoa. Sponsored by the Economic and Social Commission for Asia and the Pacific.

13. Working Group on the Development of Civil Registration Systems and Vital Statistics Collection in Africa, 21–26 October 1985, Addis Ababa, Ethiopia. Sponsored by the Economic Commission for Africa.

14. Asian Seminar on Civil Registration and Vital Statistics, 10–16 December 1985, Bangkok, Thailand. Sponsored by the Economic and Social Commission for Asia and the Pacific.

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[2]Union Douanière et Economique de l'Afrique Centrale.

15. Workshop on Registration of Births and Deaths and Vital Statistics in the English-speaking Caribbean Countries, 13–15 October 1987, St. George, Grenada. Sponsored by the Pan American Health Organization and the Economic Commission for Latin America and the Caribbean.

Recommendations

The recommendations are organized under 11 subject headings. Although some of them might fit into more than one category, individual recommendation are usually included only once. Often, essentially the same recommendation was made at more than one conference, and some that came initially from separate sources are combined here into the same paragraph when the topics seemed to match.

1. *Legal provisions*

(Conferences represented: 1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15)

The civil registration system should be based on a legal provision which defines the responsibilities of the various agencies and persons participating in the activities and indicates how the institution should operate. Such a legal basis should ensure that civil registration data are processed, analyzed and published. Any revision of the existing laws should be undertaken only when the new organization of the system has been satisfactorily tested. Legislation should authorize other public officials, as an important part of their public functions, to perform registration functions where a formal service is not available. The type of officials should be selected carefully and their work clearly defined in accordance with the conditions in each country.

*Compulsory measures, which are deterrent in effect, should be replaced by measures of persuasion and encouragement such as allowances and increased facilities which will lead uneducated persons to appreciate the advantages of a properly constituted family. As far as possible, the law should provide that no fee be charged for registration of vital events, particularly births and deaths, and that a notification as proof of a registered event should be provided free of charge to the informant.

*There is need for clear laws and regulations setting out the civil status of all persons and establishing compulsory registration of all live births, marriages, deaths and other vital events prescribed under the law. Failure to register the event after the lapse of a period fixed by law should result in a penalty being imposed on the person responsible for registration. Appropriate measures should be used to ensure that religicus marriages and baptisms shall not be celebrated until the marriage or birth has been duly registered in accordance with the law.

Without interfering with the prevailing procedures regarding correction and clarification of certificates, the possibility should be considered of introducing an administrative procedure facilitating the public's access to records without defects or errors. Actual documentation should be checked both in regard to design and content, in order to achieve simplification. It should be kept in mind that the information in each document be determined by its objective and that eventually the service might be automated.

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*Paragraphs marked with an asterisk represent opposing views from different conferences.

The inflexible nature of some civil registration laws tends to frustrate the operation of the civil registration system since any innovation needed to improve the system would require new legislation. The law needs to be as flexible as possible, particularly at the initial stages of a civil registration system. All classifications considered by the population as negative or stigmatizing (illegitimacy, illiteracy, race, etc.) must be removed.

2. *National and public interest*

(Conferences represented: 1, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15)

To facilitate the full performance of both juridical and statistical functions, civil registration should represent a felt need for the whole community and should be an institution that forms part of the national process of development planning. At the national level, officials involved in vital registration and vital statistics should take every opportunity to ensure that senior government officials (and particularly the ministers responsible) are made aware of the importance of vital registration and the maintenance of vital records. To this end, at national or regional seminars or workshops, government ministers should be invited to deliver an address and other means should be found to keep the topic in the minds of these ministers and senior officials.

To obviate the general apathy of the public as well as of governmental organizations towards the civil registration system, extensive publicity through all modes of communication such as radio, television, cinema, books and pamphlets and other audio-visual media should be put into operation to motivate the population to register vital events. A civil registration enlightenment program needs to be continuous hence such program should include plans for the follow-up of the initial campaign. Countries should develop diversified programs of sensitization and motivation addressed to the key personnel of the country and to their urban and rural populations, taking into account to the extent possible local customs and traditions.

Sufficient national resources should be mobilized to enable the implementation of projects for improvement and expansion of civil registration systems. Financing of registration services should be the responsibility of the state, with guarantee of sufficient economic support without expense to the public.

A crucial factor in improving registration is for governments to institutionalize the need to produce an appropriate certificate as a necessary condition for receiving social and welfare benefits or privileges such as welfare payments, school enrollment, passports, insurance policies, approval for burial, and determination of land rights or inheritance. However, great care should be exercised in the use of such inducements; otherwise, innocent parties such as children may be unnecessarily punished for the failure to register events.

A high-level national committee should be charged with the responsibility for monitoring the civil registration system and supported where necessary by subcommittees at the operational levels. The national committee would be useful in coordinating the activities of the various official agencies involved in the system and of ensuring that sufficient support, both budgetary and administrative, is available for civil registration.

3. *Administrative organization*

(Conferences represented: 1, 3, 6, 8, 9, 10, 11, 12, 13, 14)

Civil registration should be the responsibility of local agencies directly dependent on a national office which can supervise, inspect and unify the civil registration system and promote

its efficiency to the end that it satisfies both legal and statistical needs. If it is not feasible to organize the civil registration system along those lines, local agencies should at least be coordinated with the national office. Civil registration services should be the responsibility of officials appointed principally for that purpose but, where such an arrangement is not feasible, responsibility for registration may be assigned to other authorities or persons, with a view to ensuring maximum possible registration of vital events. Civil registration officials should enjoy security of tenure.

The planning of civil registration activities cannot be an independent process, since other related sectors must also be involved in the same activities. Consequently, machinery for the coordination of the service with other sectors is essential.

With respect to the technical and administrative features that the body responsible for civil registration should have, no standard rules could be recommended because countries have different political and administrative systems. However, some criteria could be generally applied. The national or regional services should be organized with an appropriate hierarchy, and with separate sections dealing with juridical, administrative, budgetary and inter-institutional questions, among others. Registration offices should be established in adequate numbers, they should be easily accessible, their territorial jurisdiction should be clearly defined, and office hours should be suited to the needs of the local population. Wherever possible, mechanized procedures should be adopted for doing the work.

The designation of the appropriate ministry to which the civil registration system should be attached depends on local conditions and especially on the political and administrative organization of the country. However, it must also be guided by the authority and capacity of the particular ministry or department to run and control the system throughout the country.

It is necessary to establish a clear authority with responsibility for administering the civil registration act and, separately, for compiling vital statistics. The ambiguities that exist are a consequence of past history, or reflect the low priority given to civil registration systems. One way in which improvement could be achieved is through local involvement in the running of the system. This could be done by involving village bodies or local councils in the supervision in their areas. Such involvement would help to increase public awareness as well as raise the status of the local registrar in the community.

4. *Coordination*

(Conferences represented: 1, 3, 4, 5, 6, 8, 10, 15)

A national civil registration committee or commission comprised of representatives of the concerned ministries and institutions should be established to coordinate their activities and to define measures to ensure the smooth running of the civil registration system. It should include agencies responsible for registration, collection, tabulation, analysis and dissemination of civil registration matters and vital statistics in the country. The aim of the committee should be to agree upon targets in the completeness, accuracy and timeliness of vital registration and efficient collation, analysis and dissemination of vital statistics and to ensure that each responsible unit, with such assistance and coordination as may be necessary, plays its part in achieving these objectives. Subcommittees such as a technical subcommittee, a training subcommittee and a communications subcommittee could also be established under the national committee to deal with specific questions.

The civil registration system should involve the active cooperation of hospitals, health centers, and medical and paramedical personnel in the registration of births and deaths and particularly in improving data on causes of death.

There is a need within countries for integration and coordination among the various public and private agencies using and producing data to promote uniformity of concepts, definitions, classifications and tabulations to be adopted by the various users and producers of data in related fields. It is therefore recommended that countries set up national committees on which different interests would be represented. Officials should also institute the closest possible coordination between the civil registration and civil identification services. They should maintain close cooperation between civil registration officials and social service workers (visitors, assistants, welfare workers and so on) and other organizations to facilitate their respective tasks.

5. *Registration methods and procedures*

(Conferences represented: 1, 6, 9, 10, 11, 13)

Uniform national standards relating to the content and types of civil registration documents (registers, declaration or notification forms and/or statistical report forms) should be established to ensure the collection of a minimum number of basic topics for all population groups and geographical subdivisions. Provision should be made for sending systematically the registration and notification forms or the statistical report forms to the agency designated to process the data.

Civil registration registers or records should be kept in duplicate, one copy being retained in the custody of the office responsible for the largest geographical area feasible and the other in the custody of the office responsible for the smallest geographical area practicable considering the political and geographical divisions of the country.

General alphabetical indexes should be regarded as absolutely essential for the efficient working of the civil registration services; the preparation of such indexes by mechanical means has advantages over any other system. Without prejudice to the foregoing, it may be considered desirable to supplement the alphabetical index by a chronological index.

Suggestions should be developed for implementing data processing systems that will integrate the registration and statistical functions, producing alphabetical indexes needed by registration personnel and required statistical data with a single handling of each document.

In designing forms for the registration of vital events, their purpose should be kept in mind. Attention should be paid to the desirability of providing adequate space for the proper inclusion of the particulars required by law, any marginal notes that may be required, and other remarks. Simplification of registration procedures and instruments should be pursued, so informants as well as recipients will have less difficulty.

There is need to consolidate the documentation used in civil registration. Too many documents act as an impediment to smooth implementation, and urgent steps should be taken to keep such documentation to a minimum consistent with the objectives of the registration process. Some countries record unimportant or unnecessary events and leave out important events, which implies the absence of registration criteria. Many countries record their vital facts in oversized books which are difficult to handle. Appropriate measures should be taken to simplify the procedure for the correction of entries. Witnesses should be dispensed with in cases where there is reliable documentary evidence of the events to be registered.

Consideration should be given to the possibility of including in the civil registration legislation of the various countries a recognition of every person's right to change, if he so desires, the name which was given to him when his birth was registered.

A system of verification at the administrative, judicial and statistical levels should be established, preferably close to the place of the event.

6. *Personnel*

(Conferences represented: 1, 6, 8, 10, 11, 12, 13, 14, 15)

The efficiency of the civil registration personnel should be ensured by improving their professional status and their expertise by establishing a separate body of civil registration personnel, with periodic training, in-service courses, appropriate supervision, etc., and by increasing their numbers where necessary according to size of geographic area and distribution of population. A clear definition of the roles and functions of civil registration personnel, including community contacts in rural areas, should be included in programs for improvement and expansion of the civil registration system. Due care should be given to the selection of registrars, particularly in rural areas, ensuring when possible that the persons selected are natives of the area or have resided in it for a reasonable length of time.

The important and critical role of district registrars should be recognized by the governments of the region and, where necessary, arrangements made for a significant upward revision of their remuneration commensurate with their duties. Visits by senior government and other officials are also important in raising the status and self-esteem of local registrars.

7. *Training*

(Conferences represented: 1, 3, 4, 5, 6, 8, 9, 10, 11, 13, 15)

All registrars should receive theoretical and practical training which will fully qualify them for the efficient performance of their administrative and technical duties.

Overall, four levels of training are recommended: first, training for policymakers should usually take the form of a two-week study tour of a country with a fairly satisfactory civil registration system. Second, training for high-level technicians should last for three months and should consist of both lectures and job attachment. Third, training for district registrars should be for two weeks and requires only briefings instead of special courses. Fourth, training for registration assistants should last for two to seven days. It should have a well-prepared timetable and should be geared toward the actual functions the registration assistants are expected to perform. This training should consist of lectures and practical exercises. Question and answer sessions should also be organized and a "points to remember" pamphlet prepared for use by the registration assistants. All such training should take place before each level of personnel actually starts performing its functions. Thus, for projects partly funded from external sources, the training program could constitute either a pre-project activity or comprise the first phase of the implementation of the project.

There is need for the training of other specialists, especially the computer staff in the use of microcomputers and associated software. Such training can be given abroad if no local facilities for this exist. In addition, medical personnel and other professionals should be trained in correct completion of forms.

Provision should be made for continuous retraining and for the training of trainers. In addition, briefing sessions should be organized for personnel involved in public enlightenment campaigns in connection with civil registration.

Periodic national and regional seminars should be organized to exchange experiences, study the vital registration laws in force, and seek solutions to the various problems that exist. The skills of national statistical personnel to analyze data should be upgraded, which would strengthen the national analytical capabilities. In a number of countries none of the official statisticians or trained statistical officers have had in-depth training in demographic methods and demographic analysis with particular emphasis on vital statistics. Also, the awareness of the value of vital statistics and their utilization by policy-makers and service managers should be promoted with the ultimate aim of improving the quality of life in the nation.

8. *Facilities and equipment*

(Conferences represented: 1, 4, 15)

Logistic support required in a civil registration system includes a wide network of administrative infrastructure as well as data processing and printing facilities. Adequate office accommodation with the necessary storage facilities at the head office and the district registration offices is also needed. It is not essential for a mainframe computer installation to be located within the agency responsible for civil registration, but access to the computer installation is required. Microcomputers may be acquired for some of the data processing needs. A serious problem in many smaller countries is that tabulations must be prepared manually, and the staff for this is limited. For these countries, the use of microcomputers for data processing of vital statistics may be a great boon. Moreover, the use of standardized forms would facilitate the development of regional standard software which would result in greater cost efficiency and reduction of processing and training time.

Governments should seek to make available to the vital statistics departments the necessary equipment and training so that once the tabulations are received the statistical reports can be quickly printed and disseminated to all users. Finance and shortage of printing paper have proved to be major bottlenecks in civil registration programs. However, countries should guard against overdependence on external assistance.

Efforts should be made to use existing public transportation wherever possible and to avoid the tendency to include a large fleet of vehicles in projects submitted for external assistance. Vehicles should be purchased only to supplement public transport in special areas where they are considered vital. When feasible, motorcycles and bicycles should be used for the collection of documents.

9. *Evaluation and other needed research*

(Conferences represented: 1, 2, 3, 4, 8, 9, 10, 11, 12, 14, 15)

National authorities should undertake a continuous program of studies to determine the degree of incompleteness of registration in each of the main population groups using the methods best adapted to local conditions. Such studies should be made regularly and should take the form of a cooperative undertaking by the institutions that participate in the production of vital statistics. Standing arrangements should be made for the exchange of information concerning the experience gained by each country.

Among the means that could be used for evaluation purposes are procedures combining population censuses and sampling with specific surveys to measure the completeness of the registers, together with special studies to supplement the usefulness of the registers. Similarly,

it would be advisable to conduct tests to measure the accuracy or truth of the information furnished by the civil register and, from a more general standpoint, to organize and develop registration zones with the aim of achieving a gradual improvement in the service.

It is suggested that, despite some serious theoretical and practical problems, the dual record approach might be useful but should be used together with other techniques. Especially important is the need to compare the vital statistics obtained from civil registration with those derived from other sources.

Indirect methods for estimating vital rates provide, at best, only a broad indication of the magnitude of the true vital rates even at the national level and hence must be used with great caution. It is also important to explore carefully whether the assumptions underlying those methods are satisfied in any specific country or circumstance.

Experimentation and analytical studies should be conducted to improve the efficiency of sample design through suitable variability studies and to improve the quality of data by adopting methods for detecting and adjusting for nonsampling errors and biases, including use of demographic models. It is recommended that matching studies should form part of the evaluation of a civil registration system and should be complemented by follow-up investigations to ascertain the causes of deficient registration.

Studies on methods and problems of civil registration systems and vital statistics collection should be undertaken on a periodic basis. Such periodic studies should be submitted to a working group to review progress achieved and to formulate recommendations on any future relevant remedial action. A study on civil registration systems of relevance to nomadic areas should also be undertaken.

It is recommended that more experiments should be undertaken in countries to develop a method of ascertaining and classifying causes of death by laymen and paramedical personnel. As a first step, the World Health Organization should be requested to prepare a manual on that subject.

With respect to interinstitutional relations, it is recommended that working groups should be set up, composed of demographers, statisticians, registrars, public health officers, sociologists etc. to carry out studies on specific aspects of vital events. Meetings of experts should be organized for the purpose of analyzing specific issues and for the presentation and study of methodologies and/or techniques that may contribute to the improvement of civil registration.

10. *Priorities*

(Conferences represented: 1, 2, 4, 8, 12)

In the first stage of a program to improve civil registration, priority should be given to the organizational, technical and administrative aspects of the system. When the initial stage has been completed, consideration should be given to the use of more complex statistical methods such as sampling, with a view to improving the system itself. When it is decided to use any such technique, its use should always be supervised by skilled staff as a guarantee of efficiency and the production of reliable results. While recognizing the desirability of aiming at an ideal system of civil registration, goals should not be set so high as to be unattainable.

It is recommended that countries should give first priority to the registration of births and deaths by recording basic topics and compiling relevant statistics. Nevertheless, marriage and divorce registration provide indicators of changes in number and composition of families and households, which have significant demographic, social and economic implications. Countries that have not yet developed a system for registering marriages and divorces are urged to take early

steps to do so and to compile statistics on those events. Registration of fetal deaths should be given a lower priority than that of live births, deaths, marriages and divorces.

11. *Technical assistance*

(Conferences represented: 2, 3, 4, 5, 6, 10, 12)

With respect to aid from international agencies in the field of civil registration, countries could benefit from coordinated action by the United Nations Statistical Office, U.N. regional commissions, the World Health Organization, other international and regional organizations, and agencies within countries whose civil registration and vital statistics systems are highly developed.

International technical assistance should include advice from experts on improving civil registration legislation and regulations; suggestions as to administrative procedures and the preparation of related rules, including questions of mechanizing the service; organization of national training courses for registrars; carrying out of tests to evaluate the reliability of the statistical information collected by the civil registration service; and the introduction of publicity techniques to arouse the interest of the community in prompt registration of vital events.

Granting of fellowships for officials in the civil registration, statistical and health services would also be helpful, as would the preparation of materials and the organization of workshops to consider designs suitable for sample registration and survey methods to deal with problems such as recall lapse, supervision, control and evaluation.

ESSENTIAL CONDITIONS FOR IMPROVING VITAL STATISTICS AND CIVIL REGISTRATION SYSTEMS[1]

Samuel Baum

Over the past few decades, many international and regional conferences, workshops, and seminars have discussed the problems of existing vital statistics and civil registration (VS/CR) systems and adopted numerous recommendations on how these systems might be improved. Among these recommendations are the conference participants' perception of what are the essential conditions required for a country to produce useful products from the VS/CR systems.

During these decades, we have come to better understand how these conditions actually facilitate the improvement process, which of them are absolutely essential, and which ones are highly desirable but perhaps not absolutely essential and might even be bypassed by alternate arrangements. The efforts of numerous countries to upgrade their VS/CR systems, often with the assistance of United Nations agencies or with other foreign assistance, have also given us an opportunity to test the proposals for improvement. This paper describes our current assessment of what the essential conditions are and gives some idea of their priority.

Central Government Commitment

First and foremost among the essential conditions is a strong and continuing central government commitment to allocate sufficient financial, human, and political resources to improvement of the VS/CR systems. Without a minimum of funds for salaries, forms, transport, equipment, fuel, storage files, data processing equipment, and so forth, it is not possible to maintain a satisfactory system, no matter how good the intentions are. Yet we know that inadequate funding is a serious deficiency in most developing countries. Strong central government support is also an essential condition to ensure that the various ministries involved in the VS/CR systems cooperate to the fullest extent. Even in countries where the administration of CR and VS are in the same ministry, the cooperation of other ministries is required for a satisfactory system. For example, health ministries can play a crucial role in operating a notifier system, as vital events often occur in health facilities and their personnel are often present when a vital event occurs.

The Education Ministry, Labor Ministry, Foreign Ministry, and other ministries can help develop a "need" for registration by requiring civil registration documents for entrance to educational facilities, ration cards, passports, work documents, driver's licenses, etc. But without strong central government commitment and direction, this required cooperation is often not forthcoming. Devising and promoting greater use of registration documents and vital statistics by the various ministries as well as by private businesses and organizations is essential for developing the strong national commitment required to improve VS/CR systems. The session at this workshop on uses of the products of VS/CR systems provides a number of examples of how the products are used.

Strong central government support is required to ensure that the various levels of government in a nation—the central, state, and local levels—also cooperate to the fullest extent. What is

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[1]This article is an edited version of a paper presented at the African Workshop on Strategies for Accelerating the Improvement of Civil Registration and Vital Statistics Systems, Rabat, Morocco, 4 to 8 December 1995, sponsored by the United Nations Statistical Division and the Economic Commission for Africa.

absolutely essential is that the local government units and their officials, who are most often responsible for the registration function, come to think of an active registration role as a normal and essential part of their regular duties and not as an added burden.

Strong central government support is needed to ensure the passage of legislation and the adoption of regulations that may be required to institutionalize and legitimize needed reforms. For example, regulations might provide for the establishment of an interministerial committee to help monitor and guide the VS/CR systems. The ministries that are involved in the operation of the VS/CR systems in one way or another and the ministries that are users of vital records and statistics would be represented.

Central Registration Authority

Another essential condition for a satisfactory VS/CR is a Central Registration Authority that can direct and/or coordinate the registration activities throughout the country and supervise their operations. Without such a central authority, it is difficult to attain the central-state-local coordination and cooperation that is required. Even in a nation that has a decentralized registration system in which the states have major control over registration activities, a central authority is needed to provide leadership and to devise the means to coordinate activities and foster cooperation between the center and the states, as well as among the various states. A strong central authority can be an important force to ensure that uniform or comparable procedures and definitions are followed throughout the nation.

Focus on National Program

One condition required for a program to improve the VS/CR systems of a nation is a focus on improvement of the national program. In a sense, this is a departure from many of the past international assistance projects, which focused on pilot or demonstration areas. Although those projects may have been successful in the pilot areas, the conditions (including financial and human resources) present in the pilot areas were rarely replicable on a countrywide basis. Thus little, if any, replication of the pilot or demonstration project ever took place. This does not mean that there should not be any testing of proposed new procedures in limited areas, but these new procedures should not require resources that would not be available for the entire country in a reasonable period of time.

Realistic Measures With High Probability of Success

Only realistic measures with a high probability of success should be implemented. Some problems are relatively intractable because their solution would require major changes in a nation's social and economic conditions, e.g., ready availability of qualified medical personnel, or major political rearrangements. Such difficult problems can be handled later. A good discussion of the question of which problems to attack earlier or later is found in IIVRS Technical Paper No. 20, *Improving Civil Registration Systems in Developing Countries*, by Forrest E. Linder, October 1982.

Responsiveness to Needs of Data Users and Beneficiaries

An improvement program must be responsive to the needs of data users as well as producers. Data users must be able to make their needs known. It is therefore essential to bring individual and organizational users into the program development at an early stage to help in assessing the existing system and in drafting a plan of action for improvement. These persons and organizations should continue their association with the program. One way to do this would be to set up an advisory committee of users and producers that would meet periodically to review the output of the VS/CR systems.

Support of Beneficiaries

There are many organizations in the fields of health, legal professions, human rights, children's and women's rights, etc. that stand to benefit by improvement of a nation's VS/CR systems and the consequent availability of vital records and statistics. Gaining the active support of these groups will help in obtaining the strong government commitment required for improvement.

Active Notifier System

Recently there has been growing awareness that, although it is necessary to publicize the importance of vital registration to the general public, dependence solely on household members to report vital events may delay the improvement process. There seems to be growing recognition that some sort of "notifier" system can help to speed it up. Such notifiers would be persons or agencies who learn about a vital event and notify the registration official of its occurrence. These notifiers might be health center personnel, midwives, funeral directors, persons in charge of crematories and cemeteries, etc. Registration systems that can take advantage of these knowledgeable sources can increase coverage and even improve the quality of data. Because of the great potential for improvement of registration, it is urgent that operational research be conducted to determine the best persons and procedures to be used in notifier systems.

Another question that deserves to be the target of operational research is how to get persons who know about vital events to persuade the "immediate family" to themselves notify the registrar about the event.

Creating a Need for Registration Documents

Unless the populace uses registration documents, there is little motivation to register vital events. What is lacking among a large portion of the population in many developing nations is an awareness that one may someday need a registration document. In actuality, many people may never really need such a document. Even when regulations "require" one, officials often ignore the requirement. But without awareness of a need for a registration document, it becomes considerably more difficult to develop satisfactory VS/CR systems.

The Civil Registration authorities should seek the cooperation of other ministries to demonstrate the usefulness of such documents for establishing eligibility to participate in a wide variety of programs and activities. Although few would argue that an infant should be denied access to a health center because it does not have a birth certificate, the health worker may well ask for such a certificate, and if one is not available, urge the parent to register the child's birth. Another possible action would be to have the health worker inform the registration unit about the

vital event. Ration cards for infants and children might also "require" a birth certificate. If the various agencies work to build a need for registration documents among the public at the same time that a public enlightenment campaign is carried out in the mass media, schools, etc., the population may with time become aware of the need.

Training

VS/CR systems involve a large number of persons who need comprehensive and continuous training to do their jobs right. Workshops, seminars, and refresher courses are useful components of a training program. Such training, in addition to building needed skills, helps to build professional pride among the numerous officials responsible for the day-to-day operation of the systems throughout the country. Without a corps of registration officials who believe in the importance of their duties, it is exceedingly difficult to improve CR systems. In the United Kingdom, the movement to professionalize the position of "registrar" has progressed to the point that there are special training courses that registrars can pursue for the purpose of taking examinations that, if passed, result in the award of a certificate as a Professional Registrar. Written manuals are also needed for registration personnel to refer to, and satisfactory systems require that these manuals be readily available to all who need them.

Transport and Communications

Adequate means for officials at all levels of VS/CR systems to communicate with one another, and an attitude that fosters such communication, are essential conditions for achieving satisfactory systems. Persons at each level have much to learn from one another; without such communication, no reforms will last for long. Existence of a field staff for the central and/or provincial registration authority is a highly desirable means by which communication between the various levels of the registration system can be maintained. Likewise, for supervisors and registrars to do their work properly and to do the follow-up that is often required, some access to means of transport is needed. The amount, frequency, and type of access depend on settlement patterns, topography, and workload. Often fairly simple means of transport, such as bicycles and motorbikes, will suffice.

Patience and Time

Too many countries have sat too long waiting for their VS/CR systems to improve. What is urgently needed in most developing countries is an aggressive program of action for improvement. A researcher who spent much time working on improvement of VS/CR systems in Francophone Africa is Michel François. He concluded that, given the widespread and continuing nature of these systems, patience and time are essential conditions for success once an improvement program has been implemented. Thus, even when an aggressive campaign for improvement is launched, the users of the products of the VS/CR systems must have some patience. One of the dilemmas of programs to improve VS/CR systems is that even when strong efforts are made to improve the systems, some of the products of the systems will not be available for a relatively long time (compared with other sources of vital statistics). Unlike a sample survey, whose results can often be obtained in a couple of years, or a population census, which may require a few more years to yield results, VS/CR systems may take a couple of decades to achieve a fully adequate state. François wisely asks the question, "How does one

engage the politician, who loves what can be seen and seen rapidly, in an effort whose results he will not see?"

The answer would seem to be that it is essential to be innovative in utilizing whatever products may be obtained from VS/CR systems even when the systems do not yet have complete nationwide coverage. One strategy to buy time is to improve the VS/CR system by geographic areas so that usable birth and death statistics will become available in a shorter period. Another strategy is to identify geographic areas that have acceptable coverage (90 percent or higher) and thus establish a "national birth registration area" and a "national death registration area" that can give usable estimates almost immediately and that can be expanded as more areas fulfill the requirements for satisfactory coverage. This procedure was used in the United States during the first half of this century.

Even when coverage is not complete, birth registration records can be useful for identifying cases for contact in immunization campaigns, family planning programs, nutritional campaigns, etc. Death records can help identify important health problems. By finding such uses for vital records and statistics, we may help sustain the commitment long enough to allow the VS/CR systems to be improved. Patience and time are scarce commodities—we can help by actively devising and promoting uses for the early products of VS/CR systems.

Establishing These Conditions

The foregoing discussion about the conditions that are essential for developing satisfactory VS/CR systems in a developing country does not tell us how to establish these conditions. Creating such conditions is an intermediate goal of an improvement program. How to establish a strong government commitment, for example, is an issue that has faced all reformers. It is one of the key questions that each country and the concerned persons and ministries must answer. It is a question that I believe should be a major topic at workshops like this one.

The most essential overriding condition for improvement is that the Director of the National Registration and Vital Statistics Service(s) and staff be dedicated to providing leadership to bring about all the conditions essential for the development of the VS/CR systems. Without their sustained effort, nothing is going to get done.

STRATEGIES FOR IMPROVING CIVIL REGISTRATION AND VITAL STATISTICS SYSTEMS IN THE COUNTRIES OF THE ESCAP REGION[1]

M. Khalid Siddiqui

Introduction

During the past four decades, a number of resolutions and recommendations were adopted for the improvement of civil registration and vital statistics systems in developing countries, while numerous seminars, workshops, and conferences were organized to identify possible ways of achieving that goal. In the ESCAP region, particularly in Asia, several meetings have been organized and projects implemented with international assistance to improve the civil registration and vital statistics system. Yet as far as the completeness of the system is concerned, not many examples can be found in the region where notable progress has taken place during the past four decades. This is evident from the information published in the United Nations publications, *Demographic Yearbook* and *Population and Vital Statistics Report*, on the quality of vital registration data in which registration of an event is considered to be complete if 90 percent of the events occurring each year are covered.

In the 1950s, six countries or areas in East and South Asia were considered to have adequate civil registration systems, i.e., Brunei Darussalam, Hong Kong, Japan, West Malaysia, Singapore, and Sri Lanka. The situation has not improved much during the past 40 years, since only a handful of countries could be added to this list. In the Republic of Korea, remarkable progress has been reported, as can be seen in the following figures:

Completeness of registration in the Republic of Korea
(percent)

	1978	1988
Births	53	87
Deaths	74	91
Marriages	38	63

However, based on the latest information available from country sources, the list of countries with complete registration of births and deaths should include China, Macau, and Maldives. Significant progress has also been reported by the Philippines and Thailand toward improving the coverage of birth and death registration; perhaps with further progress these systems will soon be considered as nearly complete for statistical purposes.

The availability of demographic data in 53 countries or areas within the ESCAP region demonstrates the need for considerable improvements in civil registration and vital statistics systems in at least half of the countries or areas, as shown below:

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[1]This article is an edited version of a paper presented at the East and South Asian Workshop on Strategies for Accelerating the Improvement of Civil Registration and Vital Statistics Systems, Beijing, China, 29 November to 3 December 1993. The author is chief of the Statistics Development Section, Statistics Division, of the Economic and Social Commission for Asia and the Pacific (ESCAP). The views expressed in the paper are those of the author and do not necessarily reflect the views of the United Nations.

Availability of vital statistics in ESCAP countries
(number of countries)

	Births	Deaths
Total	**53**	**53**
Complete	22	21
Incomplete	23	24
Information not available	8	8

ESCAP is a diverse region, where wide differences are found among countries as to size of population, geography, society, culture, history, and socioeconomic development. This variety of situations has contributed to a rich data collection experience in the region and provides valuable opportunities to learn from one another's experiences. This paper discusses some of the factors that have been identified as obstacles to improvement of civil registration and vital statistics systems in the ESCAP region and examines some of the strategies that may be considered in future plans of action.

Factors Responsible for Inadequate Civil Registration and Vital Statistics Systems

In addition to the socioeconomic and demographic heterogeneity mentioned above, there are wide variations in the organizational patterns of civil registration and vital statistics systems of the countries of the region. Thus, the various factors that are considered important in determining the quality of a civil registration and vital statistics system assume different degrees of significance under different settings and circumstances. Following is a list of factors that have been cited as obstacles to the development and improvement of civil registration and vital statistics systems:

- Public apathy
- Financial constraints
- Gaps in legal provisions and administrative organization
- Geography and population densities
- Caliber and morale of staff
- Time lag in the compilation and presentation of data

Issues and Problems and Strategies for Improvement

Public apathy

Motivation to register vital events is a major factor responsible for the degree of adequacy of a vital registration system. Legal provisions may not be effective unless they are accompanied by the perception that it is in the interest of individuals and families to register. The law by itself, whatever punitive provisions it contains and whatever power it bestows upon magistrates or registrars, will not be sufficient if it fails to take into account the hopes and fears of the common man or woman. The law should be sensibly administered to overcome a universal fear and suspicion of bureaucracy. It is important for each person to know what is required by law, what benefits or obligations are entailed and, most importantly, the location of the registration office and procedures to be followed. The system in total must be simple to follow, must be relevant, and must be seen to operate in the interest of the individual as well as the state.

Motivation among individuals and families to register vital events is a function, among other things, of literacy, socioeconomic development, and a common belief that people would fail to obtain certain benefits and entitlements in the absence of a registration document. While little can be expected from the registration authorities in hastening the pace of development and the elimination of illiteracy, these officials can contribute much toward improving the public attitude in many developing countries where the registration of vital events is incomplete.

In a number of developing countries, the legal and administrative apparatus does not insist on civil registration documents as necessary evidence on various matters such as proof of place of birth, age, relationship, and the like. Rather, an individual can easily meet the requirement through other documents and means such as affidavits and personal witnesses. Thus, there is a need to convince relevant administrative authorities and legal institutions at various levels to phase out the acceptance of other documents in lieu of civil registration records as proof of age, relationship, marital status, dependency status, etc.

It has been repeatedly mentioned in various forums that a better understanding of the role of civil registration in the society and its statistical and administrative functions by the user agencies, ministries, policymakers, and high-level officials will help both to generate interest in needed improvements and to mobilize the necessary resources. However, the question remains as to how one enhances awareness among government officials to ensure some concrete results. Perhaps to begin with, it should be pointed out that there is hardly any developed society in which registration records are not used as primary documents when it comes to rights to citizenship, to attend school, to obtain a driver's license, to obtain a passport, or to claim social security benefits. Also, it is highly unlikely that a developed country would not have an adequate civil registration system.

Incentive to register. Examples from developing countries suggest that, in legal and administrative matters, once a requirement is introduced seriously and is strictly adhered to by the authorities, people generally comply with the procedures. They do so not because of the punitive aspects but because of the perceived loss of entitlement and of important rights, such as citizenship. One example is the introduction of the identify card in Pakistan,[2] which is now commonly perceived as a document that no citizen could afford to be without. Whether it is evidence of domicile, issuance of a passport, or admission to public professional schools, no application would be accepted without the identity card. Even in private business transactions, such as purchase of land, this document has assumed a special place. This experience shows that even in the situation of low literacy, public motivation for registration can increase in the presence of relevant stimuli. There are a number of examples in the region where improvements in the civil registration systems were noticed whenever a stimulus appeared in the society. In Hong Kong, for example, although birth and death registration became compulsory in 1872, it took many years for the registration system to be qualified as complete. In the 1960s, in view of a large-scale demand for housing, preference was given in public housing projects to families with children. In order to qualify for that provision, birth certificates were required. This requirement led to a significant rise in the awareness of the importance of birth registration. This example demonstrates that one of the best incentives to register is the realization by the public at large that the enjoyment of certain rights and privileges is contingent upon proof of registration. Another

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[2]It is likely that the introduction of the identity card system itself might initially have contributed to a reduction in the registration of births. However, for recent births, it has been made difficult for children to be registered as a member of the household without a birth certificate.

contributing factor in the improvement of birth registration in Hong Kong was the rise in the use of maternity facilities in hospitals.

Public relations campaigns. To gain official support, registration authorities must be able to demonstrate that the administrative steps taken for motivating people to register would produce results beyond achieving the completeness of registration; taking those steps just for the sake of producing reliable statistics would not be a sufficient reason. For example, whenever pilot schemes were devised in the past, the main focus was to achieve civil registration completeness, but not much attention was paid to demonstrating the immediate benefits that the community and the authorities could have drawn. Perhaps future pilot schemes could pay due attention to public relations and make visible the products and services that can be extended. Potentially, complete registration in a community can produce information useful for education, housing, health, and population programs. For example, birth records may be used for implementing mother and child care programs, while statistical information, such as data on birth weight of the babies, may be utilized in determining the actual focus of those programs. One area that has assumed increased importance is statistics for local areas and communities for which civil registration plays an important role. Local authorities and community leaders, if convinced of this role, would no doubt prove to be effective allies.

Another factor responsible for the lack of attention to the needed reforms of civil registration and vital statistics is the failure of officials in developing countries, as well as donors, to recognize that much of the population data that appear in national and international statistical publications are based on indirect measurement. Often these data cannot be assigned the same degree of reliability as those available on developed countries, and the major reason for this disparity is the inadequacy of civil registration in developing countries.

In the region, efforts by some countries to promote a better understanding of the importance of civil registration have included publicity campaigns, through media such as exhibition of posters, films, slides, television, and radio spotlights. In the Philippines, since 1991, February of every year has been declared Civil Registration Month. The usefulness of registration is being inculcated in some countries by introducing the need for production of birth certificates at the time of school admission, issuance of ration cards, and issuance of passports, etc. However, further studies are required to evaluate the impact of these efforts on the improvement of registration coverage.

Financial constraints

Resources remain a major constraint in improving civil registration and vital statistics in developing countries; often infrastructural development of this nature is considered a low priority. The lack of resources contributes to a number of basic problems, such as insufficient number of primary registration offices and the dependence on *ex officio* and/or part-time registrars. Many of the factors contributing to this situation and possible strategies for improvement have been discussed above. In several countries of the region, measures taken to circumvent financial constraints include introduction of the notifier system, use of local registrars in each village, and use of mobile registration offices. Nevertheless, mobilization of adequate resources should remain a high priority and, as mentioned earlier, serious consideration should be given to public relations aspects for activating support.

Gaps in legal provisions and administrative organization

In the ESCAP region, the tradition of population data collection and civil registers can be traced back to early historical times, such as in the United Silla Kingdom of Korea (A.D. 668–935). However, the promulgation of legal acts and ordinances, making the registration of births and deaths compulsory, began in most countries in the second half of the nineteenth century. The legislation as it exists in different countries reflects the organizational structures and the past political histories of the countries. Where registration is relatively complete, including several island developing countries, the legal requirements to register vital events within the specified period of time are generally followed, although there may be some exceptions. On the other hand, in the majority of countries in South Asia and Southeast Asia, the registration of vital events is unsatisfactory despite the presence of legal provisions. Only Bhutan, Lao People's Republic, and Solomon Islands still lack a civil registration act.

While it is true that a registration act alone is not sufficient to ensure compliance with registration, it is necessary to have laws which clearly define the powers and resources of the registration agency, the compulsory nature of registration, the informant, and the time period allowed to register.

Since registration laws in many instances are decades old, the countries recognize that they need review and revision. There are examples in the region where revisions have been introduced to legal provisions. It would be most useful if an assessment of the impact of such changes could be made. Recently in the Philippines the status of Civil Registry and Vital Statistics Division of the National Statistics Office was raised to the level of the National Civil Registration Office. Through a Senate Bill, provision has also been made for every local government unit to have a full-time, permanent career position of local civil registrar. In 1986, and again in 1991, civil registration laws in the Republic of Korea were revised to simplify the procedures of registration by informants.

During discussions in regional and other meetings, civil registration and vital statistics officials from developing countries often identify problems with regard to existing legal provisions—such as laws not being specific enough to deal with all aspects of legal systems, registration laws not covering the entire territory of the country, existence of several systems of registration with their own comprehensive laws, and absence of detailed and clear rules and regulations to encourage good reporting. However, it is not clear how often such discussions lead to concrete steps toward early rationalization of the laws. There is a need to identify ways and means of implementing the sound recommendations emanating from civil registration and vital statistics agencies.

In the ESCAP region, the organizational structures of civil registration systems can generally be characterized as "centralized" ones. Usually local agencies are responsible for civil registration but are overseen by a national office that supervises, inspects, and unifies the system. For example, in Japan, vital statistics are derived from information obtained through the family registration system provided for by the Family Registration Law (KOSEKI). At the central level, the Ministry of Justice has responsibility for administering the system, whereas subbranch offices of the Ministry supervise and assist local offices. However, in a number of countries, the agency in charge of civil registration at the center may be different from the agency or agencies looking after the registration work at the local level. The involvement of different departments requires coordination through such means as interdepartmental agencies. The absence of interdepartmental coordination is another major issue facing many developing countries with weak registration systems.

Geography and population densities

Difficulties of terrain and poor access to the local registration offices, due to lack of adequate transport, communication, and other facilities, are among the factors that contribute to poor civil registration in several countries, such as Papua New Guinea and Nepal. It is recognized that this problem may be tackled by establishing an effective network of local registration offices and through better coordination among relevant departments, particularly between the Registrar General's office and the Health Departments. However, many of these solutions are not implemented due to resource constraints. In some island developing countries, one problem in the compilation of vital statistics is the late submission of returns from distant islands, which in some cases are quite dispersed and require a considerable amount of travel time and resources to reach.

Caliber and morale of staff

Even where people recognize the responsibility to register and sufficient incentives are present to do so, the system can face difficulties if the registration staff is not properly trained or does not have the right attitude to serve the public. One concern expressed in various regional forums is the low status of the local registrar in the community. Where the registration function is assigned as part of various other duties, it invariably receives a low priority. In some South Asian countries, this problem has contributed to a situation where people cannot even locate the office and the official responsible for registration. The lack of interest shown by the registration staff, such as the failure to make registration forms available, discourages people to visit those offices unless there is a strong reason to do so. It has been observed that monetary incentives, constant supervision and encouragement, and public acknowledgment by high-level officials of the importance of the registrar's role are among the factors that may help to enhance the status and morale of local registrars. In some countries, attention has been paid to the training of staff, for example by conducting annual seminars or workshops for local civil registrars in every region and selected big provinces.

Time lag in the compilation and presentation of data

In the majority (about two-thirds) of countries in the region, the major responsibility of the national vital statistics administration rests with the national statistical offices. The compilation, processing, tabulation, and dissemination of data from administrative records have different characteristics than other processes of data collection. Because of the involvement of different agencies and the continuing process of registration, the agency responsible for compilation does not have as much flexibility as is the case with population censuses or surveys.

A major factor contributing to the time lag in the compilation of vital statistics, which is often done by date of occurrence, is late registration. Another is late submission of returns by local offices. To counter those problems, some countries have proposed adopting more intensive procedures for monitoring the flow of registration forms and their processing to ensure that tabulations are produced on a timely basis.

Application of computer and microfilm technology for the preservation and retrieval of civil registry documents is among several steps being taken to improve the civil registration system. Other measures include application of on-line computerized data entry and electronic data communication and transfer. Attention is also being paid to the improvement of the quality of

information collected on birth, death, and marriage certificates so that more information can be derived to help the analysis of fertility, mortality, and marriage trends.

Concluding Remarks

In considering strategies for improving any administrative system, it is important to focus on its various components. In the case of the vital statistics system, a review should concentrate on legal aspects, organizational structure of civil registration, and administrative structure of the vital statistics system. In-depth review is also required of the collection process, which brings together and controls the statistical returns; the statistical recording procedures, such as transcription and coding; the compilation procedures, which include editing and tabulation; and the presentation and analysis. The characteristics of vital events that are included in the statistical document also need to be reviewed, particularly in countries that have relatively complete registration of vital events.

The experiences of the countries in the region in tackling issues with respect to the various components mentioned above would serve as useful guides for future reviews and formulation of strategies for improvement—some of which have been discussed in this paper. Thus the process of sharing these experiences should continue, through such means as technical meetings and publications. However, much needs to be done to understand public apathy toward civil registration and to promote innovative measures to minimize it. Hardly any systematic research has been conducted on these issues despite their recognized importance.

This paper has emphasized reliance on public relations campaigns and visibility of the outputs and services of a vital registration system to gain support at a high level in the government. However, statisticians and registrars need more allies in this campaign, both within and outside the government. Civil registration is an important legal instrument and has fundamental linkages with various issues concerning human rights. Thus a campaign should also be launched to gain active support of lawyers' associations and nongovernmental organizations concerned with human rights. Similarly, associations and agencies concerned with the advancement of women, indigenous populations, and other special population groups, if properly briefed, would also be interested in the improvement of the civil registration systems in their respective countries. Users of statistics, such as local authorities, community leaders, and chambers of commerce, should also be the focus of the public relations campaign.

There is a need to conduct further research on the impact of various strategies for improving civil registration and vital statistics systems, such as the revision of laws and regulations, publicity campaigns, and improvements in the status and salary of the registration staff.

CONSIDERATIONS IN THE ORGANIZATION OF NATIONAL CIVIL REGISTRATION AND VITAL STATISTICS SYSTEMS[1]

Iwao M. Moriyama

Civil registration systems have been in existence for many years in many, if not most, developing countries. For example, in three quarters of the 36 countries on the African continent for which information is available, civil registration dates back more than 50 years. However, little progress has been made over the years in establishing a satisfactory system for the registration of vital events and compiling statistics therefrom. There are many reasons for this state of affairs. Chief among them is the low priority accorded civil registration and vital statistics (CR/VS) by governments because of the absence of a need for vital records for any governmental function. Another possible reason is the manner in which the CR/VS systems are organized. This article examines the present organizational structures of the national CR/VS systems and the factors which seem to deter their growth and development. It is hoped that this will suggest the best organizational structure for a civil registration and vital statistics system.

Present system of registration

A civil registration system requires a national network of local offices where the registration of vital events takes place. The establishment of such a system is essential for the compulsory and continuous recording of vital events, the safekeeping and retrieval of vital records to be used for individual legal and administrative purposes and for the compilation of national vital statistics. The system may be organized and operated on a centralized or decentralized basis. A decentralized system is one in which the local registration offices are administered by the state or provincial authorities following state or provincial laws and regulations with no national office to direct their activities except possibly to coordinate them.

The United Nations[2] recognizes two types of administrative structures in a centralized system. The first has been termed the principal centralized system, in which a network of local registration offices is directly controlled and mandated exclusively for civil registration administration. The second is referred to as "the other centralized system," in which the local registration offices are directed by a government agency other than a national civil registry, such as the statistical office or the health ministry, in which civil registration is a part of the overall administrative program.

Although the United Nations Handbook provides a number of examples of the principal centralized system, none of them seems to fit the definition because the local registration offices do not deal exclusively with registration of vital events but perform additional functions such as registration of legal documents other than vital records, preparation of voters' lists, issuance of personal identity cards, health administration or administration of justice. Actually, there may be systems in a few small countries that fall within the definition of a principal centralized system, but few, if any, big countries have civil registration offices mandated exclusively for that purpose. A principal centralized registration system, as defined, is an ideal system not found in the real world because of the expense involved in establishing a system dedicated exclusively to civil

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[1]This article was abstracted from IIVRS Technical Paper No. 36, July 1989.

[2]United Nations, *Handbook of Vital Statistics Systems and Methods*, Vol. 11, *Review of National Practices*, Studies in Methods, Series F, No. 35, 8-10, New York 1985.

registration. Almost all countries have used an existing framework of local public services such as government offices, the courts, health centers and local election boards for the registration of vital events.

Responsible central authorities. In countries with a centralized registration system (see Table 1), the legal responsibility for registration is most frequently lodged in the Ministry of Home or Interior (34 percent), followed by the Ministry of Justice (28 percent) and the Ministry of Health (15 percent). The rest (24 percent) are in various administrations such as the Prime Minister's Office, Ministry of Finance and others.

Table 1. Legal Responsibility for National Civil Registration, by Region (Number of countries)

Region	Countries with data										No data
	Total	Home or Interior		Justice		Health		Other			
	No.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.		No.
All regions	144	49	34	40	28	21	15	34	24		37
Africa	40	19	48	9	23	4	10	8	20		11
North America	19	3	16	8	42	2	11	6	32		11
South America	8	2	25	4	50	1	13	1	13		0
Asia	34	16	47	5	15	10	29	3	9		5
Europe	32	8	25	8	25	2	6	14	44		5
Oceania	11	1	9	6	55	2	18	2	18		5

There seems to be a regional pattern in the national organization of civil registration systems. In Africa and Asia, the locus is most frequently in the Ministry of Home or Interior (including territorial administration, local governments and internal affairs). In North America, South America and Oceania, the legal responsibility is most frequently in the Ministry of Justice. In a relatively large number of countries of Asia, the Ministry of Health is responsible. The European countries do not fit into any of the regional patterns.

Supervision of local registration offices. In countries with a national registration office, local registration offices may be supervised through a chain of authority in the same ministry or department or through some other administrative channel, depending on the organization of the civil registration system. In general, the central registration offices situated in the Ministry of Interior and in the Ministry of Health have a channel of communication through their own ministry. In most other situations, the national registration office gives technical advice and direction to the local registration personnel under the administrative control of another ministry, usually Home or Health.

According to available information, in 60 percent of civil registration systems, the national registration office and the local registration offices are in the same ministry or administration and in 40 percent they are in different administrations (Table 2). In Asia, the ratio is close to 80 percent in the same administration. The percentage of countries with the national registration office and the local registration offices in the same administration is also relatively high on the

African continent and in South America. On the other hand, in fewer than half of the countries in North America and Europe are the national and the local registration offices located in the same administration.

Table 2. Location of National and Local Registration Offices, by Region (Number of countries)

Region	Sufficient data					Insufficient data	No data
	Total	Same administration		Different administration			
	No.	No.	Pct.	No.	Pct.	No.	No.
All regions	134	81	60	53	40	19	38
Africa	37	25	68	12	32	4	11
North America	22	9	41	13	59	1	11
South America	10	6	60	4	40	0	0
Asia	29	23	79	6	21	3	6
Europe	27	13	48	14	52	7	5
Oceania	9	5	56	4	44	4	5

The actual situation is somewhat more complicated than that indicated by the data presented because the system may not be uniform within a country. For example, in India the responsibility for civil registration at the state level is generally in the hands of the health administration. However, in four of the states, the economics and statistics departments are responsible for registration of vital events. In one state, the Panchayat (village council) is responsible for the registration of births and deaths. In rural areas, the local registration offices may be found in the police station, revenue office, or in the Panchayat, depending on the state. In two states, public health centers serve as local registration offices. This is probably an extreme example of variability, but if all the facts were known about the systems of every country, a lot more variation would undoubtedly come to light.

The national organization of civil registration systems is such that in about 60 percent of countries, the line of authority extends from the national office to the local registration offices. In other countries, national civil registration agencies have to exercise technical direction of the activities of the local registrars under the administrative supervision of another ministry or department. This may not present too much of a problem where the local registrars devote full time to registration of vital records, but questions of priority arise when the person serving as local registrar has other duties to perform. Because it is essential that the local registrar always be available to give service to the public during prescribed working hours, much will depend on the nature of the cooperative arrangement between the two ministries.

The various patterns of organization of the national CR/VS systems come about because of differing situations within countries, and countries are free to seek their own solutions to the

various problems. Although the United Nations Statistical Office has issued guidance,[3] the principles and recommendations as they relate to the structure and organization of the CR/VS systems are rather general.

Considerations in establishing CR/VS systems

A number of considerations go into the establishment of national CR/VS systems. First is the issue of a centralized versus a decentralized system. There is no question as to the desirability of a centralized system, be it for registration or for vital statistics, as it is much easier to obtain the essential uniformity of definitions and practices from one geographic area to another in a centralized system. Only in a federated system of government is it necessary to provide the state or provincial governments with authority for certain civil functions.

From the standpoint of effective administration of any system or operation, it is essential that the responsible agency have the capability of exercising technical as well as administrative control of all its employees. With respect to the national network of local registration offices, the administrative supervision of the local employees will not be possible if the local offices are located in another ministry or department, especially when the position of local registrars is a part-time function. This means that the jurisdiction of each local registrar should be big enough to provide for a full-time workload. At the same time, the jurisdictional boundaries of the local registration office must coincide with recognized political subdivisions so the public need not question where a vital event should be registered. Another important consideration is the ready accessibility of the local registration office to most residents of the area. Although it may not be possible to meet all these conditions, they represent factors that need to be considered.

Because vital records on file are legal records, it would seem that the logical place for the civil registration function would be in the Ministry of Justice as it is in about half of the countries of the Americas and Oceania. On the other hand, the function of compiling vital statistics would be more appropriately placed in the Central Bureau of Statistics than in the Ministry of Justice.

In addition to the appropriateness of the function in a governmental organization, there is the question of where the mandated activity will develop best. In order to examine this question, one might consider the following requirements for vital records and for vital statistics:

- Current registration
- Geographic and population coverage
- Registration completeness
- Data coverage
- Quality of data

Current registration relates to the timeliness of registration, which is a problem in developing countries. A large number of late registrations of births and deaths not only creates an administrative problem in registration but makes it impossible to obtain an accurate count of vital events occurring during the year. *Geographic and population coverage* refers to provisions of the registration law that usually specify that registration should be compulsory for vital events occurring in every subdivision or territory and to the entire population residing in the country. There are some exceptions in that the law might specify that only events occurring in the principal

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[3]United Nations, *Principles and Recommendations for a Vital Statistics System*, Statistical Papers, Series M, No. 19, Rev. 1, United Nations, New York, 1973.

cities need be registered, or that certain ethnic or population groups should be excluded from compulsory registration. *Registration completeness* refers to the proportion of vital events occurring in an area that is actually registered. It has served as a useful index of acceptability of vital records for statistical compilations. The United Nations has published ratings of completeness: C for areas where 90 percent or more of vital events are registered, and U for areas where less than 90 percent of events are registered. *Data coverage* refers to the items of information required for registration and for vital statistics. For registration purposes, a limited number of items of information is recorded for live births, fetal deaths and other deaths, for example, place and time of the event and the individuals involved. For statistical purposes, many other characteristics of the child, mother and father are needed in the case of live births and fetal deaths, and of the event and the decedent in the case of other deaths. *Quality of data* refers to the completeness and accuracy of the data collected.

An assessment of the importance of each of the above factors to civil registration and vital statistics offices in developing countries is given in Table 3. It is assumed that at present there is little or no need for individual birth and death records in most of these countries.

Table 3. Factors of Importance to Civil Registration and Vital Statistics Offices in Developing Countries

Factor	Civil registration	Vital statistics
Current registration	+	+++
Geographic and population coverage	+	+++
Registration completeness	+	+++
Data coverage	+	+++
Quality of data	–	+++

Note: Number of plus signs represents relative importance; minus sign represents lack of importance.

By law, registration offices are generally charged with the responsibility for the timely registration of all vital events occurring in an area and the collection of additional statistical information for the vital statistics agency. In order to fully discharge these responsibilities, all the factors listed should be important. However, if only a small proportion of vital events occurring in the area is actually registered and no demand exists for individual copies of the records, there will be little incentive to mount a significant program to improve registration practices and procedures. This is especially true in the absence of adequate operating funds. With the increasing use of and demand for individual copies of vital records, greater importance will be attached to all facets of registration and its coverage.

Vital statistics offices, on the other hand, are fully cognizant of the importance of these factors in the discharge of their responsibilities for compiling national vital statistics. However, they are in the frustrating situation of being completely dependent upon the civil registration system to produce complete and accurate information on a timely basis. If the civil registration system and the vital statistics system are autonomous and separated organizationally, the vital statistics office is in a poor position to influence or work with the civil registration office for the improvement of registration of vital events. This is a cogent reason for having the registration and vital statistics functions in the same ministry or department and on at least equal levels. From the standpoint

of stronger incentives, it may be better to have the registration organization subordinate to the statistical office.

Ministerial or departmental responsibility for CR/VS

The next issue is where in the governmental organization the civil registration and vital statistics functions should be located to maximize their opportunities for growth and development. As noted above, the various countries appear to be utilizing one of four different networks for the registration of births and deaths, namely, local government under the Ministry of Home or Interior, the courts under the Ministry of Justice, hospitals and health centers under the Ministry of Health, and an organizational unit grouped under the heading of population registries, personal identity systems, and election boards.

From the standpoint of possible growth of registration and statistics, the court system seems to be the least desirable. Efforts to improve registration and to develop and maintain a statistical program are so different from the functions of the judicial system that registration and statistics would do better elsewhere. Furthermore, while the local courts may be a satisfactory place for registration of vital events occurring in cities, they probably cannot serve the rural population in a satisfactory manner.

In over 60 countries, civil registration is linked organizationally with governmental functions such as population registration, personal identification and maintenance of national electoral rolls. Information about vital events is essential for updating registers and election lists and for preventing the fraudulent use of identity cards. Except for the question of data coverage, the needs of the population register and the personal identity system are like those of the vital statistics system. Also, the population register, the personal identification program and the election boards are likely to be adequately funded. If this is so, the registration of vital events will probably develop faster there than in any other locale. On the other hand, the vital statistics function will probably not do as well if associated with an agency whose principal task is to issue personal identity cards or to set up an election registration system. Although the mechanics of population registration are different from those of CR/VS, vital statistics will fit in with a population analysis program should there be one in the population registry.

An important public service is the provision of medical care, which involves the establishment of a network of hospitals, clinics and health centers that may be used to house local registration offices. Also, births, deaths and fetal deaths frequently occur in health institutions. Therefore, the Ministry of Health is regarded by about 20 countries as a suitable site for a national registration office. In addition, some countries (Canada and the United States) utilize state and local public health offices for the registration of vital events.

Because the health service is one of the major users of vital statistics for planning and administration of public health programs, a good case can be made for locating the civil registration and vital statistics functions in the Ministry of Health. Unless a strong statistical program already exists in that ministry, provision must be made for the processing of vital records and the analysis of data.

Of all the government agencies, the Ministry of Interior or the Home Ministry appears best equipped to provide service to the public through its system of local government, and the central registration offices are most frequently under that jurisdiction. The use of an existing network of local governments makes for an economical operation insofar as the registration of vital events is concerned. On the other hand, for the vital statistics component to prosper, the vital statistics office should be part of the Central Bureau of Statistics or the census operation if these functions

exist in the same ministry. However, in the absence of statistical support, the Ministry of Interior would seem to be a less desirable location for the civil registration and vital statistics functions.

Whether the health administration or the Central Bureau of Statistics should be the locus of the vital statistics function is a difficult question to answer unequivocally. An important consideration is the authority for the civil registration function. If the health administration is responsible for civil registration, it does not make much sense to place the vital statistics function in the Central Bureau of Statistics. From a statistical point of view, the Central Bureau of Statistics would be a more appropriate place for vital statistics, but from the standpoint of use of the data, the health ministry would seem to be a better locale. However, the health administration is generally not interested in the demographic aspects of vital statistics, especially as they relate to marriage and divorce. In either event, neither the health nor the demographic uses of vital statistics can be neglected. This means that wherever the responsibility for vital statistics is placed, the health and demographic interests should participate in the planning and development of national vital statistics.

COORDINATING ROLE OF NATIONAL COMMITTEES ON VITAL AND HEALTH STATISTICS[1]

Unit for the Development of Health Statistical Services,
Division of Health Statistics, World Health Organization

Introduction

In Geneva in 1948, the first World Health Assembly recommended the establishment of National Committees on Vital and Health Statistics in the member nations of the World Health Organization for the development of vital and health statistics. In countries where more than one agency is involved in the registration and the statistical processing of vital events, the National Committee provides a unique mechanism for coordinating the two functions, with a view to producing uniform vital statistics to meet national needs. The need for coordination has received international recognition because of the fragmentation of responsibilities for vital statistics in most countries of the world. The National Committee also provides a means for the consumers of vital and health statistics to plan jointly with the producers in the development of needed data for national planning of social programs.

By the end of 1950, as many as 23 countries had established committees and informed WHO of their composition and terms of reference. By December 1953, the number had reached 30, of which 15 were from the American Region, eight from Europe, three from the Eastern Mediterranean Region, two from South Asia and two from the Western Pacific Region. At the present time, some 55 countries appear to have established committees. A number of them are inactive. On the other hand, four countries are now planning to constitute a national committee.

At its first meeting in 1949, the WHO Expert Committee on Health recommended that a unit be established in the WHO Secretariat "...for maintaining relationship with National Committees (or their equivalents), this to include an exchange service for National Committees, reporting on their work and supplying information which might be of value to them." Moreover, WHO should "...issue an information document setting forth the motives and background for the establishment of National Committees on Vital and Health Statistics, emphasizing their objectives, suggesting problems which might need solution and reporting on the present status of those National Committees already organized."

A series of documents[2] was begun by the aforementioned liaison unit at headquarters, with the hope that dissemination of information on the construction and work of the national committees would stimulate their activities and encourage countries without a committee to establish such organizations of their own.

First International Conference on Vital and Health Statistics

The First International Conference of National Committees on Vital and Health Statistics was convened under the auspices of the World Health Organization in London, 12-17 October 1953. Representatives of 28 countries attended. The Conference reviewed the antecedents, objectives,

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[1]This article was abstracted from IIVRS Technical Paper No. 6, January 1980.
[2]WHO/HS/NAT.COM: World Health Organization/Health Statistics/National Committees.

patterns of organization and programs of work carried out by the national committees or equivalent bodies, discussed progress to date, and outlined some major future possibilities.

Objectives were set forth as follows:

(a) To help assess the needs for vital and health statistics, evaluate the degrees to which needs are met, and provide adequate vital and health records and statistics;
(b) To help achieve uniformity in statistical methods, records, and tabulations, with a view to both national and international uses;
(c) To assure free flows of information and adequate exchange of views concerning needs and preferences of producers and users of vital and health records at all levels;
(d) To relate the activities and functions of diverse agencies or organizations that produce statistics, so that they work as a coordinated whole, avoiding both wasteful overlapping of effort and important gaps in essential aspects of statistical data;
(e) To enhance the practical use and appeal of vital and health statistics;
(f) To stimulate needed statistical studies by expert persons or groups;
(g) To stimulate the training and supply of adequate numbers of skilled workers in the field of vital and health statistics, and to encourage the interest of the medical profession in the statistical approaches to medical problems; and
(h) To assist, under appropriately defined circumstances, in the implementation of international recommendations in this field.

The Conference recommended that any government which had not yet fully considered the formation of a national committee or an equivalent should review, having regard to its particular circumstances, the practicability of setting up such a body. In setting up a national committee, regard should be given, *inter alia*, to the following considerations:

(a) Its functions would normally be advisory and coordinative, executed in response to requests from an appropriate government authority. It would also be free to initiate consideration of matters within the general scope of its terms of reference, including the undertaking of research and special studies; and
(b) Membership of the committee should include, as far as possible, administrative, professional and lay persons concerned with the collection, analysis and use of health and vital statistics. National representatives should come from governmental and nongovernmental institutions and agencies, the medical profession, the universities and research institutes. Regional and local representatives should also be selected from governmental and nongovernmental institutions and agencies and should include other competent persons concerned with the specifically regional or local aspects of health data collection and uses.

Outside consultants and similar short-term personnel should be utilized when needed.

Second International Conference on National Committees

The Second International Conference on National Committees, in which 59 countries participated, was held in Copenhagen in 1973. It reiterated the basic objectives of national committees as set out in the Report of the First Conference. It considered the continuing need for national committees on vital and health statistics or equivalent bodies and pointed to the

important role that these agencies can play in improving communication and understanding between producers and users of statistical information.

The Conference recommended that the National Committee should be able to identify areas for which statistics are needed and to recommend specific ways to meet the needs. The Committee should periodically review the statistical system for its effectiveness and efficiency, and should recommend areas where *ad hoc* investigations, as distinct from routine statistics, are needed and also where special surveillance registers need to be instituted. It should also ensure adequate publication of statistics and research findings.

The National Committee should be a focus for national and international cooperation and efforts to improve health statistics. WHO should consider making use of national committee members for its expert committees. At fairly frequent intervals, WHO should convene an assembly of representatives of national committees to review world health statistics problems. Such meetings would enable WHO to identify the problems that are most common in Member States and for which action is needed. The necessary action could then be undertaken either by WHO or by international health statistical centers. Such centers should be created to promote health statistical activities among countries, namely by exchanging views and ideas on problems of the organization of health statistical services, and in providing assistance in the fields where such assistance is needed.

Review of Developments

The period 1948 to 1952 witnessed a maximum rate of establishment of national committees, after which their creation slowed down considerably. The various committees have evolved in different ways. Some have changed their terms of reference and names, while some have become dormant. In others, the original functions have been taken over by the central statistical office or by another government service. It appears that not all statistical offices or other bodies claiming to be substitutes for national committees have been able to adopt the coordinative and cooperative functions recommended 30 years ago as a basis for sound development of vital and health statistics at both national and international levels.

Adequate review of national committees or their equivalents has become a difficult task. Although 58 countries have declared that they have established a national committee, this does not in itself assure that the committee meets the objectives and functions recommended by the First International Conference of National Committees, nor is there assurance that adequate attention is being devoted to changing national needs for statistical services in the light of evolving developments in health.

The review of the following Regions is based upon information received by WHO.

African Region

Since 1965, national committees have been approved in six WHO Member States. One other country plans to establish regional committees, with similar functions, for its three administrative areas. Plans for creating a national committee are under consideration in three more countries.

American Region

The recommendation of the First World Health Assembly that governments should establish a national committee was followed by practically all countries of the Region. Over the years, the changes in national health policies have also affected the national committees. If in some

countries the situation has become unclear and information scarce, in others a positive evolution can be observed, for example the creation in 1967 of the Central American Standing Committee on Health Statistics. This Committee, comprised of six Member countries (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama), suggested, *inter alia*, that the Central American Public Health Council "...reactivate national committees on vital and health statistics since these represent a useful and effective means for putting the recommendations approved by the council into effect."

In assuming functions similar to those of a national committee on vital and health statistics but at an intercountry level, the Central American Standing Committee on Health Statistics, in collaboration with the Pan American Sanitary Bureau (WHO Regional Office for the Americas) and the Organization of Central American States (ODECA), was given responsibility for:

(a) Evaluating the situation in regard to health statistics in each of the six Member countries;
(b) Defining as fully as possible the needs for statistical information and their priority; and
(c) Examining and evaluating the suitability for Central American needs of the tables and plans contained in the Regional Program for Basic Statistics, with a view to suggesting any changes that might be necessary.

Four Working Groups were constituted to deal with the following matters:

Group A	Mortality statistics in Central American countries, and the civil register and vital statistics.
Group B	Hospital statistics in Central American countries, and health statistics for epidemiological purposes.
Group C	Health statistical program for Central America and Panama, and vital statistics and health administration.
Group D	Rules of procedure of the Central American Standing Committee on Health Statistics.

In Canada, an Interdepartmental Committee on Health Statistics was created in 1974 with functions similar to those of a national committee, namely, to provide a continuing mechanism for maintaining effective coordination between National Health and Welfare and Statistics Canada on health statistical matters. The Interdepartmental Committee continued the work begun by the Ad Hoc Committee on Health Statistics in reviewing and making recommendations concerning the development of the national health statistical systems. Its membership reflects the interests of the five health branches and the welfare side of National Health and Welfare and the Health Division in Statistics Canada.

One of the most active national committees has proved to be the United States National Committee on Vital and Health Statistics (USNCVHS). It is the official external advisory body to the Secretary of Health, Education, and Welfare in the field of health statistics. Established by the Secretary in 1948 at the World Health Organization, the Committee and its subcommittees (or technical consultant panels) deployed from the beginning a great activity which was regularly reported to WHO. In 1974, the USNCVHS received statutory authority in Public Law 93-353.

In Latin America, the special attention which is at present being devoted to the improvement of vital registration might lead to a new interest in reactivating or creating national committees on vital and health statistics. At the Meeting on Strategies for Improving Civil Registration in Montevideo, Uruguay, November 1977, one of the solutions suggested on the national level for promotion of civil registration in American countries was "Promotion through publicity campaigns

directed toward: national committees on vital and health statistics; officials within the ministries of health, education, etc."

Eastern Mediterranean Region

Of the original seven national committees created by countries of this region, three have not survived. Within the last few years, new committees were established in four other countries, one following the recommendation of the Second International Conference of National Committees.

European Region

Of the 12 countries which originally established a national committee, not many have maintained their committee in its original form. A number of Eastern European states have focused their efforts on the strengthening of their central statistical offices, centralization of health statistics being assured by legislation. In opposition to this is the strong autonomy of the administrative regions in some Western European countries which often makes coordination on the central level difficult. However, efforts in this direction have been made. Also, similar to the Central American Committee mentioned earlier, the five member countries of the Nordic Council (Denmark, Finland, Iceland, Norway and Sweden) have established an intercountry organization titled the Nordic Medico-Statistical Committee. The functions of this Committee are similar to those of a national committee, its purpose being to coordinate and standardize health statistics in the Nordic countries in order to permit closer comparisons. Several working groups deal with specific health statistical fields.

Southeast Asian Region

Of the five national committees established in the Region, two still assume some of the functions of a national committee on vital and health statistics and have been instrumental in new procedures envisaged for rural vital registration.

Western Pacific Region

Following the recommendation of the Second International Conference of National Committees, the Australian Health Ministers' Conference, in 1976, agreed to create a National Committee on Health and Vital Statistics, with representatives from Commonwealth, State and Territory Health Authorities, the Australian Bureau of Statistics, and three representatives of the Hospital and Allied Services Advisory Council.

The terms of reference of the Committee are:

(a) To report and recommend to the Australian Health Ministers' Conference measures for the development, coordination and rationalization of health statistics; and
(b) To inform the Australian Statistics Advisory Council on priorities in health statistics.

The National Committee also collaborates with other committees concerned with health statistics, including those of the National Health and Medical Research Council.

In discussing the current situation regarding the collection of data by States and the Commonwealth, members expressed the opinion that the National Committee, as the only

Committee comprising representatives from Commonwealth and State Health Authorities, funding agencies and the Australian Bureau of Statistics has a unique role. This role is to collate and coordinate all demands for health data and recommend priorities for the collection of these data to the Health Ministers and the Australian Statistics Advisory Council. The Committee members agreed that coordination be required between the functions of the National Committee and those of the Health Statistics (Standing) Subcommittee of the National Health and Medical Research Council and the Computer and Research Committees of the Hospital and Allied Services Advisory Council. They also agreed to exchange summary reports of meetings with these committees and to keep the World Health Organization, the U.S. National Center for Health Statistics, and the National Committee's New Zealand counterpart informed of the Committee's actions.

In Japan, the functions of a national committee on vital and health statistics are assumed by the Health and Welfare Statistics Council which holds annual meetings to review the vital, health and social welfare statistics activities of the Statistics and Information Department of the Ministry of Health and Welfare. Frequent meetings were held by the Council's Subcommittee on the Classification of Diseases and Causes of Death which considered the possibility of adopting the 9th Revision of the ICD and translation of the English version into Japanese. Other activities of the Health and Welfare Statistics Council concerned various health and mortality surveys.

In New Zealand, functions of a national committee are assumed by the National Health Statistics Center and the Standing Committees of Medical Research Council, namely the Health Statistics Policy Committee, the Advisory Committee on Epidemiology, the Inter-Departmental Committee on Statistical Needs and Priorities, and the Congenital Anomalies Advisory Committee.

Conclusions

The usefulness and productivity of national committees on vital and health statistics vary depending on the circumstances. First, there must be a strong commitment on the part of the administrators of the civil registration, national vital statistics, and the national health programs to develop and improve statistics needed for planning of national health and welfare programs. Second, there needs to be a clear understanding of the objectives of the National Committee and the limitations of Committee activities in achieving such objectives. Third, judicious selection of members of the Committee is needed to represent essential viewpoints and to secure active participation of these members in the deliberations of the Committee. Last, there is need for an able chairman to guide the discussion and a competent staff of subject matter specialists to prepare an agenda and documentation for the discussions.

The experiences of national committees on vital and health statistics (or their equivalent) in several countries have demonstrated the potentials of this mechanism for obtaining technical developments in vital and health statistics. Each country will probably need to experiment with various methods of operation to develop the most effective procedures for the operation of its national committee.

APPROACHES TO COLLECTING DATA ON FERTILITY AND MORTALITY FOR THE ESTIMATION OF VITAL RATES[1]

United Nations Statistical Office

In spite of an increasing demand for reliable estimates of fertility and mortality, civil registration systems in most developing countries still do not yield the complete and accurate data required for the direct estimation of basic demographic measures. To fulfill the demand, two other methods of data collection—population censuses and sample surveys—have contributed by providing the data required for the estimation of crude birth and death rates, general and total fertility rates, gross and net reproduction rates, and life expectancy.

This article presents an overview of the various approaches available to collect fertility and mortality data in censuses and various types of sample surveys to supplement the defective data from civil registration systems. It discusses the potential of each method to overcome some of the most serious errors and biases and to obtain reliable data down at least to the major subdivisions of the country. It brings out the limitations of the data from these methods in light of past experiences around the world. Finally, it briefly discusses indirect techniques for demographic estimation.

The immediate potential offered by the various indirect estimation techniques makes them attractive alternatives for generating measures of fertility and mortality if data from censuses and surveys are available. But the usefulness of these techniques depends on the purposes to be served by the estimates and the limitations of the various methods in satisfying those purposes. The underlying assumptions must be carefully considered before selecting a particular technique. Once a technique has been selected, the parameters derived must be evaluated by internal and external comparison using all available data sources.

Approaches in Population Censuses for Collecting Data on Fertility and Mortality: 1965–1984

The population census was originally seen as providing data only on the population at risk, that is, the denominator needed to estimate birth and death rates and age-sex specific fertility and mortality rates. Numerators for the rates were to be obtained from the civil registration system. However, in many developing countries, the rates so obtained were too low to be accepted as true values. Consequently, other questions were devised to gather information on fertility and mortality in population censuses and sample surveys.

Current births and deaths

Population census takers have attempted to collect information on live births and deaths in the 12 months preceding the interview (or another fixed period, such as 24 months). This approach was clearly intended for the direct estimation of birth and death rates. When sex and age of the deceased were collected, age-sex-specific mortality rates could, in theory, also be calculated and from them other mortality measures derived. Both numerators and denominators are built into the census.

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[1]This article was abstracted from IIVRS Technical Paper No. 37, September 1989.

The earliest attempts were made in the censuses of the United States of America in the nineteenth century, when data from civil registration were largely unsatisfactory. More recently, countries have included retrospective questions on births and deaths in the past year in their censuses. Thirty-four out of 160 censuses during the 1970 census decade and 55 out of 160 censuses during the 1980 census decade[2] asked a question on the number of births in the 12 months preceding the census date. The information was collected by inquiring of the head of the household the number of children born alive in the household in the past 12 months. A second approach, believed to provide better results than the former, asked each woman of childbearing age of any civil status, "How many children have you had in the past 12 months?" Thus, current age-specific fertility rates could also be calculated. The 1981 census of Togo, for example, included two independent questions to obtain a better approach to the true number of births in the past year. One set of data was gathered from the head of the household and the other from all women aged 12 years and above regardless of their civil status. The reference period was the calendar year preceding the year of the census.

Similarly, data on deaths in the past year among members of the household were collected in 10 censuses in the 1970s and 29 in the 1980s. Sex and age of the deceased were queried in 6 censuses in the 1970s and 17 in the 1980s. These censuses were mainly in Africa and Asia.

Each country has paraphrased the questions in different ways; below are some of the most commonly used forms:

Deaths in the previous 12 months (addressed to the head of the household):

- How many deaths have there been in your household last year?
- How many deaths have there been in this household during 1981? (the reference period in this case was the calendar year preceding the census year)
- Any death in this household last year?

Births in the previous 12 months:

- How many children were born alive in this household the past year? (addressed to the head of the household)
- Any child born alive in this household last year? (addressed to the head of the household)
- How many children did you give birth alive to last year? (addressed to women in their childbearing period)

The relatively small number of censuses that included these retrospective questions is not surprising, as countries have been aware of the poor quality of the data generated by such approaches. Analysis of the data in many countries has not produced useful results. The poor performance of these questions is attributable to recall lapse; misconception of the reference period; misreporting of ages, if applicable; inclusion of fetal deaths; or simply misunderstanding of the nature of the question. Despite all these problems, there is still hope that at least the data on deaths by sex and age would be useful inputs to indirect estimation due to new developments in methodology.

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[2]The 1970 census decade ran from 1965 to 1974 and the 1980 census decade from 1975 to 1984. In this article, these census decades are also referred to as "the 1970s" and "the 1980s," respectively.

Children ever born and children still living

Questions asked of women about children ever born and still living, and children dead at the time of the enumeration also have a long tradition in population censuses. The approaches of countries in the last 20 years to obtain the number of children ever born were made either by the straightforward question, "How many children have you ever borne alive?" (108 censuses in the 1970s and 102 censuses in the 1980s) or by derived information from two independent queries about "the number of children still living at the time of the census" and "the number of children who have died up to the census date." Fifteen censuses in the 1970s and 23 in the 1980s used the latter approach. Initially, the two categories were split to minimize omissions of children who died shortly after birth. Early in the 1960s, data on children dying (or surviving) were viewed as sources to estimate mortality in infancy and childhood.

Information on children ever born should be gathered from all women in their reproductive ages, regardless of civil status. However, some countries have defined other universes. For example, countries in which births to mothers at ages below 15 were important, from the statistical point of view, have lowered the age limit to 14, 13, 12, 11 or even 10. Furthermore, in some societies questions on children ever born and children surviving are a sensitive issue for single women, so a sizeable number of countries have restricted these items to ever-married women or currently married women. This was the case in most Asian and European countries. Below are some of the other subgroups of women from whom data were collected in the censuses of the last 20 years:

- All women aged 12 to 49 years
- All women aged 15 to 54 years
- All women aged 10 years and above
- Ever-married women under 50 years of age
- Ever-married women under 70 years of age
- Ever-married women aged 15 to 54 years
- Currently married women

The main limitation of data on lifetime fertility is that no timing can be inferred for the age-specific fertility rates estimated on the basis of these data, except for the latest developments in methodology. Similar problems occur with mortality estimates. In all censuses, some children ever born collected through this approach were clearly omitted, especially by the oldest cohorts of women, 35 years of age and above. It was argued that women might underreport children who have left home and are living elsewhere and those who died in early infancy. Therefore, rewording of the questions was suggested to minimize those errors, as follows:

Of the children you have ever borne alive:

- How many are currently living with you in this household?
- How many are currently living elsewhere in another household?
- How many have died?

Seventeen censuses in the 1970s and 28 censuses in the 1980s approached the problem in the above way, although the questions are more suitable for a survey, as they are more lengthy and time consuming.

Date of the most recent live birth

Simultaneously with improvements in techniques to collect data on living and dead children, another strategy was sought to collect data on recent fertility and mortality. It was proposed to determine the birth date of the most recent child born alive and inquire whether or not the child was alive at the time of the interview. Data on children born alive in the preceding 12 months and children dead in the same period could then be obtained at the processing stage. This approach would minimize misconception of the reference period. The follow-up question about the last birth was intended for improving the count of infant deaths. Twenty-seven censuses in the 1970s and 32 in the 1980s approached data collection on current fertility through this question. Survival of the last child born alive was included in only 14 censuses in the 1970s and 23 in the 1980s. The 1981 census of New Zealand used a somewhat different approach, inquiring about the "number of years since last child was born."

To improve studies of sex differentials in infant mortality, data on the sex of the most recent death among the most recent live born were collected in only two censuses in the 1970s and two in the 1980s. Aside from these approaches, five censuses in the 1970s and 13 in the 1980s included a straightforward question to collect information on infant deaths with reference to a retrospective fixed period, generally one year. This approach has all the limitations described for deaths of all ages in the previous 12 months.

Some other censuses took quite a different approach, inquiring about the date of birth of each child born alive and whether or not the child was alive at the time of the census; that is, a maternity history was taken. This approach is unusual in a population census, as it is a refined technique more suitable for sample surveys due to the lengthy interviews required and the added complexities in the coding, editing and tabulation stages.

Undoubtedly, the inquiry about the date of the last birth and whether or not the child was alive at the time of the census has performed much better than the traditional straightforward questions on children ever born in the past year and how many were dead among them. It reduces the problem of misconception of the reference period, and therefore the infant mortality estimates and estimates of current age-specific fertility rates have improved. However, this inquiry has not overcome all the existent problems of information derived from retrospective questions. A number of analytical techniques are available for the assessment and correction of basic data.

Data on orphanhood

Developments of indirect techniques for demographic estimation of adult male and female mortality have led to the inclusion of specific questions in censuses and sample surveys to collect data on survival of natural or biological mother and father. Most recently, the survival of the first spouse has been sought for the same purpose. Questions in census questionnaires read as follows:

- Is you mother still alive?
- Is your father still alive?

Data gathered from these questions contain no information about timing either, as the expected responses were simply yes, no, or unknown. Data on orphanhood resulting from the death of both mother and father were collected in 10 censuses in the 1970s and 13 in the 1980s. Maternal orphanhood was collected in only five censuses in the 1970s and 15 in the 1980s.

A question intended to overcome duplicate reporting of parents by siblings was then proposed: "Are you the oldest surviving child of your mother/father?" Thus, the tabulation on orphanhood resulting from the death of mother/father would be restricted to the eldest surviving child. Unfortunately, analysis of the resulting data in various countries has shown that an unacceptable number of people claimed to be the eldest child of their mother. The most common biases of these data arose from the adoption effect, multiple reporting of the same parents by siblings, the effect of declining mortality and misreporting of the respondent's age.

Data on widowhood

To improve estimations of adult male and female mortality, questions about the survival of the first spouse were suggested. The universe from which such data have been collected was the ever-married population. The most common wording of the question was, "Is your first husband still alive?" The poor performance of the suggested approach has been attributed to the effect of remarriage, as it is likely that respondents gave information about their present and not their first spouse. Another source of error arose in countries where a sizeable proportion of the population lives in consensual unions, as such people might be confused about what to consider a former marriage.

Other relevant data from population censuses

The population census collects other data for direct as well as indirect estimation of basic demographic parameters. Data on age, sex, place of birth, usual place of residence and other economic and social variables, down to the smallest geographical subdivision of the country, allow for estimating age-specific and character-specific fertility and mortality rates, life tables and other basic parameters, in combination with high-quality data from the civil registration system. For countries with defective registration data, some of the same variables can be useful for demographic estimation through a number of indirect techniques.

Nuptiality variables collected in the population censuses can play a significant role in improving indirect estimates of fertility and mortality when age misreporting is a major problem. Date of marriage appears to be more easily recalled than age (or date of birth) because marriage is an important event and more recent than birth. Therefore, a question to define "time in marriage" was suggested, which in census questionnaires often read as follows:

- What is the date of your first marriage? (or, age at first marriage?)
- Time, in years, since your first marriage? (or, time elapsed, in years, from the first marriage?)
- How many years have you been married?

Any one of these alternatives needed an additional question: "Are you still in your first marriage?" Information on time in marriage was collected in 59 censuses in the 1970s and 55 in the 1980s.

Another item relevant to fertility estimation is mother's age at the time of her first live-born child. Thirty censuses in the 1970s and 23 in the 1980s collected this information.

Finally, an item that is usually collected in population censuses for control purposes, "the relationship of each reported household member to the head or reference member of household," has also been used since the 1970s for fertility estimation in some countries. The so-called own-children technique uses such data to identify the natural mother, when possible, of each child

enumerated in the correspondent census questionnaire, then reconstructs fertility histories and from them estimates aggregate fertility and age structure of fertility, provided that age misreporting is not severe.

Advantages and disadvantages of census data for fertility and mortality estimation

The strength of census data—population figures by sex, age, place of birth, usual residence and other social and economic variables—stems from their ready availability at all desired levels of geographical subdivision of the country. This is the population at risk used to calculate various basic demographic parameters. Furthermore, the figures are free of most kinds of sampling errors. These are advantages not shared by sample surveys.

The general limitations of census data are those common to information gathered from retrospective questions. Any historical reconstruction of personal data is subject to recall lapse. Timing and cost are greater than in the case of sample surveys. Moreover, the respondent in a population census is, in general, the head of the household who also serves as a proxy respondent for other household members. This factor leads to misstatements of age, underreporting of births and deaths, misdating of births and deaths, and other errors. Even if errors in the data are minimized, a population census can never provide data for estimation of current fertility and mortality as does the civil registration and vital statistics system. This is because detailed census data are generally not available until at least 2 or 3 years after the fieldwork has ended. A further shortcoming is that a census can collect little information about each vital event, thus limiting an in-depth study of differentials. The most common errors found in population censuses relating to data on fertility may be listed as follows:

- Errors of omission: children who died or left home, children born of a husband other than the current one, children given out in adoption.
- Errors of inclusion: Fetal deaths reported as children who died in infancy, children born by another wife to current husband, adopted children, grandchildren.

In addition to incomplete counts, there are problems of misstatements in reconstructing personal histories of individuals. In many developing countries, some people do not know their age, and age is not of particular significance to them. This poses a special problem in estimating both fertility and mortality from census questions. If age structure is distorted, all specific fertility and mortality rates and derived indicators are affected. Even though a number of methods exist for smoothing the age distribution, they are mostly suited for closed populations, making difficult an adjustment of the age-sex structure at subnational levels if net internal migration is unknown.

The failure to enumerate vital events is due to a number of factors. In some societies, the fact of birth or death is deliberately concealed for superstitious reasons. Memory lapses also exist even on so important an event as birth or death. In cultures where a greater premium is placed on males, births and deaths of females are more likely to be underenumerated. In addition to the problems of recall, difficulties in the accurate dating of events result in the underreporting or overreporting of the number of events during the reference period. Finally, a census is costly and requires long advance planning, so it is taken only periodically at about 10-year intervals. Population estimates and projections are essential for the intercensal periods. These are some of the reasons to seek other methods of data collection to measure recent changes in fertility and mortality, to assess population growth and to evaluate programs. Household sample surveys provide an important vehicle for the collection of fertility and mortality data offering even more flexibility to combine various techniques.

Approaches in Sample Surveys for Collecting Data on Fertility and Mortality

Developments in sampling theory and household survey techniques in the last three decades have led to the growing use of sample surveys to collect data needed to estimate basic parameters of fertility and mortality. Shortly after World War II, retrospective surveys began to be used in developing countries. At first, these surveys approached the problem through retrospective questions, as population censuses do. In the period 1960-1980, 81 developing countries conducted at least one major survey: 33 in Africa, 24 in Asia and 24 in Latin America. More than half of the 81 fertility surveys were conducted as a part of, or in association with, the World Fertility Survey program. A number of countries took follow-up sample surveys (also called prospective surveys, multi-round surveys, or the household change technique) to assess their current levels and patterns of fertility, mortality and population growth. The dual-records system, a more complex approach to data collection that combines a multi-round survey with a continuous recording of events in the sample areas, has gained considerable popularity, mainly in Asian countries.

The single-round retrospective survey

Countries have conducted two types of single-round retrospective surveys. One type uses a short questionnaire similar to the census type, while the other combines a short household questionnaire with a more extended individual questionnaire; the latter is intended for a subsample of the population only. In both types of questionnaires, the households in the sample are interviewed once.

Most of the single-round retrospective surveys using a short questionnaire have included questions to obtain the number of children ever born, children surviving up to the time of the interview, the date of the most recent birth and whether or not the last child was alive at the time of the survey (or births and deaths in the past 12 months), data on orphanhood from mother and father and data on survival of the first spouse. As in a census, the information is obtained from a responsible adult member of the household. A survey, however, is in a better position than a census to gather quality data because the survey covers a small part of the population and thus requires fewer interviewers. This allows for better training of the staff and closer supervision of the fieldwork. Similarly, all the subsequent stages up to the dissemination of data can be controlled. A retrospective survey of this type is also more suitable than a census to phrasing the questions in the most desirable way. This is the case, for example, regarding children still living and children who have died, for which the following questions can be asked for each sex:

Of all boys/girls that you have ever borne alive:

- How many are living with you in this household?
- How many are living elsewhere in another household?
- How many have died?

The most common question on lifetime fertility asked in single-round surveys has been the number of children ever born alive. Although this is a straightforward question asked by better-trained enumerators, it is subject to the same kinds of response errors as the census method. It has resulted in overcounts as well as undercounts of the number of children ever born alive, due particularly to errors of memory lapse. Compared with estimates from the dual-records system, the estimated median birth coverage in seven Asian population growth estimation studies

involving single-round surveys was 67 percent, and the range was 28 to 96 percent. The median coverage for deaths was 51 percent, and the range was 23 to 90 percent.

The undercount of infants and young children mentioned in the case of the census is generally the same in retrospective surveys of this type. High-quality data are difficult to obtain, especially when large numbers of individuals are sampled. Even if highly skilled personnel are used and the training and organization of the fieldwork staff are adequate, social conditions of the population can still distort simple facts such as age, historical data regarding births and deaths, and so on. Experience in obtaining complete counts of vital events from retrospective surveys of this kind has also been generally poor.

Despite all the limitations of the data, single-round retrospective surveys of the type commented on here have been the main sources of data for mortality and fertility estimates in developing countries. It has been suggested that the value of such surveys could be greatly enhanced if they were repeated at regular intervals. Such repetition does not require re-interviewing the same households, but successive samples should all be representative either of the country as a whole or of the same subdivisions within it.

The main advantages of the single-round approach are cost effectiveness and timeliness. Thus, survey data can be available in about two years, including time for advance planning, pretest, fieldwork and processing and dissemination of data. Population censuses, multi-round surveys and dual-records systems require much more time.

The other type of single-round retrospective survey, using extended questionnaires, has proved to be even more flexible. Examples of these surveys are those of the World Fertility Survey program. A maternity history (or a pregnancy history) is completed for each ever-married woman or other well-defined subuniverse. This approach overcomes the ambiguity about timing in estimates of fertility and mortality derived from lifetime fertility, thus avoiding the reliance on theoretical demographic models to estimate the basic measures. It also minimizes the errors generally found in simple single-round surveys and in population censuses.

The maternity history approach collects information on date of birth and sex for every child born alive for each ever-married woman and, if applicable, the date of or age at death. Recent infant and child mortality rates can be calculated from these data for about 20 years prior to the survey. Both the numerator and the denominator of rates are built into the maternity history. Similarly, age-specific fertility rates can be calculated for a number of years prior to the survey.

Aside from a maternity history, a wider range of social, economic and other variables can be included, namely, a marriage history, attitudes towards family size and family planning, knowledge and practice of contraceptive methods, level of education, occupation, religion, and so on. Such variables have proved useful in identifying factors that can explain changes in fertility and mortality. Furthermore, a shorter household questionnaire with retrospective questions on fertility and mortality, when coupled with a more extended one, gives the opportunity for mutual evaluation and plausibility of the parameters they yield. The interviewers for this approach, preferably women, have to be more skilled and better trained than those for censuses and regular retrospective surveys. The fieldwork requires closer supervision. Furthermore, the respondent must be the woman herself and not a proxy respondent because of the large amount of historical data that have to be provided.

Experience gained from analyzing these data has shown, however, that maternity histories are subject to several sources of error arising from date and age misstatements and underreporting of children. Systematic errors persisted even when a detailed questionnaire was used. Among the other limitations is the longer time required for each interview compared with that for a population census or a regular retrospective survey. A study conducted among countries participating in the World Fertility Survey program revealed that the time per interview (for

ever-married women only) ranged from 25 minutes in Thailand to 57 minutes in Bangladesh, thus significantly increasing the cost of the survey. Furthermore, the complexity of the data collected for every woman called for skilled personnel at the data processing stage.

The follow-up (multi-round) survey

A prospective survey was devised to collect data on fertility and mortality to minimize memory lapse and misconception of the reference period. It inquires about household change due to live births, deaths, and in/out migration. Clusters of households are interviewed repeatedly within a certain period of time. Based on the experiences of various countries, three or more rounds are conducted at about 6-month intervals. An inventory of all members of the household and certain basic particulars are recorded in the first round. At each subsequent round, changes in household composition are used to provide information on births, deaths, and in/out migration among members of the household since the last interview. Special instructions are given to the interviewer when emigrations occur to ensure that a death is not omitted, as often happens in this kind of survey. To improve the reporting of infant deaths, a question on whether or not the interviewed woman of childbearing age is pregnant at the time of each interview is sometimes included. In subsequent rounds, the outcome of the identified pregnancies is queried and any infant deaths are registered.

This approach can secure a perfect consistency of numerators and denominators in terms of age, place of residence and other characteristics. However, this does not apply to infants who were born and died between rounds or when deaths occurred among in-migrants between rounds. Current levels, structure and differentials of fertility and mortality can be calculated directly from these data without making use of any demographic model. Moreover, information on the population at risk is obtained directly from the survey, the reference period is readily fixed by the date of the first and the last rounds in which each person is covered by the survey, and the effect of in/out migration is controlled for every sampled subdivision within the country. Furthermore, because the survey comprises various rounds, it allows for correcting inconsistencies of the data found in previous rounds. For reciprocal checking, a retrospective survey can be included in the last round of the follow-up survey. Thus, two different approaches can be made without increasing the cost.

The follow-up approach seems to be a promising method of data collection to secure vital rates at the subnational as well as the national level without relying on theoretical models, provided that a high quality of data is secured.

Among the disadvantages of this method is the need for a large sample to secure a sufficient number of births and deaths, as these events have low frequency in the population. This is true especially when differentials are to be studied. Other drawbacks concern timing, cost and administration. The fieldwork itself never takes less than two years, to which must be added time for advance planning and data processing. The cost is higher than that of a single-round retrospective survey because of the need to maintain a well-trained staff during the whole period of the fieldwork. On the administrative side, a number of surveys taken in various countries have proved that such exercises are difficult to keep at high standards of quality, as commitment of the interviewers, enthusiasm and supervision are inevitably lowered with the passing of time.

To these factors, one has to add that the results of these approaches have been unsatisfactory. For example, the follow-up sample should be particularly helpful in the enumeration of deaths. However, deaths, especially those occurring to heads of households, often lead to the dissolution of the households and make it difficult to locate individuals in the sample household in subsequent rounds. The median completeness for recording of deaths in the 13

follow-up surveys conducted in Asian countries was 72 percent, and the range was 50 to 89 percent. The median completeness for births was 83 percent, and range was 66 to 92 percent.

The dual-records system

To obtain further refinements in the measure of current fertility and mortality, the dual-records system was devised. In this system, data on vital events are obtained in a defined area by two independent data collection methods, a periodic household survey and a separate reporting method. The reporting subsystem compiles a vital event record on a current basis by some form of continuous recording for each birth and death occurring in the sample households. This may involve regular visits to the household or it may rely on a network of informers, with a recorder verifying the occurrence of events.

The baseline household interview survey is very much like the initial visit in a multi-round survey which identifies all members of a household and records their personal characteristics. Subsequent surveys record changes in the population composition that took place in the household since the last visit. After each household interview survey, births and deaths observed independently in the two subsystems are matched to ascertain the events reported by both data collection methods, those reported by the special recording subsystem only, and those identified in the household survey only. The Chandrasekaran-Deming formula is used to estimate vital events missed by both subsystems, thus permitting an estimate of total events and providing an internal check on the completeness of reporting by the individual systems.

In the dual-records system, every event recorded by either of the subsystems is counted as an event. Therefore, it is crucial that the matching of records from the two subsystems be of high quality so that unmatched out-of-scope events can be deleted after a thorough field check. This is a problem in developing countries, where matching is likely to be done manually, as manual matching is a difficult and laborious process even if identifying information in the two sets of records is fairly clear. In some countries, the primary match cannot be done by name of the child because babies are not given a name until they are past the newborn stage. In some countries, nicknames are used freely, and the name used may vary depending on the occasion. In addition to the various cultural factors that complicate matching, the process itself is not easy to carry out because there are no clear criteria to determine what is a match. In general, if the matching criteria are too rigid, an overcount will result. If the matching criteria are too loose, vital events will be underestimated. Adding to the cost of the matching procedure are the necessary field checks of the unmatched records. Unless the facts are verified, the counts may be inflated by the inclusion of events that are out of scope in terms of time and defined population.

Experiments with the dual-records system have been conducted in Pakistan, India, Thailand, Turkey, Liberia, Colombia, Morocco, the Philippines and Kenya. The studies have been well documented. The Indian Sample Registration Scheme, which is basically a dual-records system, has been operating on a continuous basis for more than 20 years.

This is a good data collection approach to estimate demographic parameters at the subnational level by the direct method, that is, without relying upon indirect techniques for estimation. But cost and matching problems are factors that have to be carefully considered.

Indirect Techniques for Estimating Vital Rates

The deficiencies of direct estimation techniques, especially the single-round survey, and the attendant cost of the surveys, led to the development of indirect techniques of demographic estimation. These methods are based on mathematical models and use data from surveys and

censuses on demographic variables obtained retrospectively in answer to questions, such as lifetime fertility, widowhood, orphanhood, survival of the first spouse and the age distribution of the population, to generate various kinds of fertility and mortality estimates.

The United Nations has published a manual on indirect techniques of demographic estimation.[3] It is the most complete compilation to date[4] of methods suitable for the analysis of incomplete or defective demographic data. It includes the basic hypotheses underlying the available methods, presents examples of how to apply the techniques and provides some guidance on the interpretation of the results.

The major advantage of indirect methods of estimation is the relative ease with which fertility and mortality estimates can be made once the required demographic data are available. Questions on children ever born alive, children still living, current births and infant deaths among current births are frequently included in censuses and surveys, but questions on orphanhood and widowhood are specific for estimating adult survival probabilities and less likely to be readily available. Conducting a field survey to obtain needed data to estimate mortality by indirect methods adds considerably to the cost of the estimation. Consideration must be given to the usefulness of the estimates to justify the cost.

Indirect methods have been successfully applied to data for countries with a well- developed civil registration system. However, this does not mean they will work in countries with poor survey or census data. The methods have also been tested in countries where demographic surveys had been taken, and comparisons with survey results were judged to be reasonably good. Without calibration of the survey results, it is difficult to evaluate the precision of indirect estimation techniques. For measures which do not have a specific time reference, it is not possible to expect more than a qualitative assessment.

Conclusion

Minimum national requirements for fertility and mortality statistics include crude birth and death rates and age-specific fertility and mortality rates for the country as a whole and for the major geographic subdivisions on a continuous basis. Local area data on causes of death, and seasonal data, particularly of deaths, are highly desirable for public health purposes. The importance of the availability of data on a continuous basis should be emphasized. Annual data are needed for monitoring changes in birth and death rates. Also, for major subdivisions of the country and cities with relatively small frequencies of events, it is necessary to group data for a number of years for analytical purposes.

All the estimation methods now available are capable of producing birth and death rates by age and sex for the country as a whole with varying degrees of precision. Indirect methods utilizing demographic data from the population census can also make vital data available at the subnational level. However, sample survey data usually do not go below the national level without considerable increase in cost of data collection.

Accuracy is an important consideration depending on how the estimates are to be used. Unfortunately, the lack of suitable standards in developing countries makes calibration of the

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[3]United Nations, Manual X, *Indirect Techniques for Demographic Estimation*, United Nations Publication Sales No. E.83,XIII.2, 1983.

[4]Editor's note: More recently, the U.S. Bureau of the Census, together with the U.S. Agency for International Development and the United Nations Population Fund, has published the comprehensive, two-volume manual, *Population Analysis With Microcomputers*, by Eduardo E. Arriaga, 1994. It includes a thorough presentation of individual techniques as well as a diskette and a set of computer spreadsheets for conducting the analysis.

various methods of estimation difficult. Nonsampling problems in the collection of demographic data are almost greater than sampling errors, and they are difficult to assess. Indirect estimation methods pose the further problem of determining the error arising from failure of the basic assumptions underlying the models to fit the actual demographic situation.

To be useful for evaluation purposes, the various measures of fertility and mortality must be sensitive to changes. Otherwise, it is not possible to measure the effectiveness of family planning activities or of public health programs. Current estimates from surveys can reflect annual changes in fertility and mortality, but estimates from indirect methods are averages centered on a period in some distant past and cannot be used for evaluation purposes. However, countries without any information on fertility and mortality levels may find the approximation from indirect methods useful.

No single source or approach adequately serves the need for vital statistics for a variety of uses. Indirect estimates are important complements of vital data but they are not substitutes for them. Each data source and technique, direct and indirect, may be fully exploited by individual countries taking into account the specific national circumstances and demographic situation. It is increasingly common practice to complement the results of one approach of estimating vital rates with those of others with a view to confidently establishing, within a reasonable range, the vital rates of a country and its subdivisions. The prime source still is, and will continue to be, a sound civil registration and vital statistics system. Its steady improvement over the coming years should not be lost sight of amidst efforts in the short term to fill the serious data gap with approximate estimates concerning fertility, mortality and related factors of population change.

MEASUREMENT OF BIRTH AND DEATH REGISTRATION COMPLETENESS[1]

Iwao M. Moriyama

Introduction

The completeness with which births and deaths are registered is an important determinant of the usefulness of vital statistics derived from these vital records. Because of this, the United Nations *Demographic Yearbook* publishes estimates of the completeness of birth registration for various countries made by the national authorities responsible for civil registration or for the national compilation of vital statistics. In some cases, the evaluation is based on completeness checks made by identifying individual births and deaths in the population census or in demographic sample surveys and matching them against registered events. In other cases, estimates of the number of vital events are derived by various methods, direct or indirect, and these are compared with the aggregate number of vital events registered in the same area in the same period of time. Often the reported level of completeness represents the best guess of the national authorities. By and large, these assessments can be accepted at their face value. It is not likely that the registration of births and deaths will be complete in countries that are rated unsatisfactory nor in countries for which information on completeness is unavailable. On the other hand, there may be some countries rated complete which do not actually meet the U.N. criterion of completeness of 90 percent or more. The problem in the latter case is that there is no easy way of validating the rating in the absence of a simple test of registration.

Special Problems in Measurement of Registration Completeness

Vital events occur in space and time to individuals. In virtually every country, there are laws that require the registration of these events at their place of occurrence within a specified period of time. The problem in a registration study is to identify these vital events through an independent source such as a census or survey and to ascertain if they have been registered.

In some cases, an event may not be reported at all in the census or survey because of a deliberate attempt to conceal it, because proxy respondents are unaware of it, or because of memory lapses. Errors also arise when some vital events are erroneously reported inside the time period of the study while others which actually occurred in the period are placed outside of the time frame and not reported. Other vital events may be reported in the census or survey but actually occurred outside of the geographic area in which the household is located. These are some of the problems of census or survey data which need to be addressed.

There are separate files for recording births and deaths that occurred in the registration district (primary registration unit) and registered during the year. Because registration is by place of occurrence of the event, the files include events occurring to members of households living outside of the registration district as well as to those residing in the area. In addition, because registration is by date of registration rather than by date of occurrence of the event, registration records include events that occurred in previous years as well as during the current year. In some countries, large increases in late registrations occur when parents find that proof of age is needed to enroll their children in grade school.

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[1]This article was abstracted from IIVRS Technical Paper No. 43, November 1990.

Because the geographic and time coverage of vital events reported from the two sources differ, every effort has to be made to eliminate out-of-scope cases. To accomplish this, the matching operation needs to be as accurate and reliable as possible, and a thorough field investigation must be made of at least a sample of potential out-of-scope events to minimize this source of bias.

Considerations in Designing Registration Completeness Tests

Many methods are now available to measure the completeness with which births and deaths are registered. They provide estimates of varying precision, and they differ considerably in complexity and cost. Therefore, an important consideration in deciding on a registration completeness check is the current state of development of the civil registration system. For areas where registration is poor, a precise method for measuring completeness cannot be justified, and almost any procedure for detecting incomplete registration may be used. For areas where registration of births and deaths is close to complete, it would be inappropriate, as well as a waste of time and effort, to resort to any but the most precise method available.

For a large number of developing countries, any reasonably good vital statistics estimation method should provide more accurate estimates of the number of vital events than the registration system (1). Also, a number of useful procedures can be routinely followed to detect incomplete registration. One of these is to tabulate the numbers of birth and death records registered each year by the year of occurrence of the events to provide an index of current registration which may be compared from year to year and from area to area. Another possibility is to prepare a checklist of the number of birth and death records received from each local registration office to be compared with the numbers received in previous years. Except for epidemics and other unusual events, there should be a certain degree of consistency in the number of records filed each year in each local office. Still another possibility is to compare the numbers filed locally with expected numbers based on some assumption of the birth and death rates for the population served by the local registration office.

Routine matching of infant death records to the corresponding birth records has been useful in identifying missing birth records. One can also compile lists from various sources such as churches (baptisms), hospitals and schools to match against the birth registration file. For deaths, similar lists of events may be compiled from hospital records, funeral services, and burials in cemeteries. These and other evaluation techniques suggested by the United Nations (2) serve as a useful starting point for detecting and studying the problem of incomplete registration of births and deaths in an area.

Although, as mentioned above, any reasonably good estimation method should provide an adequate basis for evaluating the completeness of registration for a poor registration system, it is not easy to find a source of data that can outperform a good registration system for producing information on births and deaths. For a test of birth registration completeness, a well-conducted population census has been found to be effective, provided the recall period is only 3 or 4 months and the matching operation is performed accurately with reconciliation of questionable matches and nonmatches. Also, provisions need to be made to identify babies whose birth and death both occurred during the period of the study. To include a birth registration completeness test in a population census should not add too much to the relative cost of the census. However, population censuses are usually conducted only once every 10 years, so the timing of any test has to be adapted to the census cycle.

Single-round demographic surveys have much the same problems as censuses in identifying births, but they have the advantage that they can be conducted at any time. Shortening the recall

period makes it necessary to enlarge the sample size, which impinges on the cost of the survey. The magnitude of sampling error is another consideration.

Experience has shown that it is difficult to achieve complete enumeration of infants and young children in a household. It is even more difficult to determine deaths that occurred in the household because this involves identifying an individual no longer present. Another problem arises when the death of a head of household results in the dissolution of the household. To deal with these problems as well as others inherent in retrospective inquiries, multi-round surveys have been suggested to follow a cohort of individuals. Such prospective studies, when coupled with an independent data collection procedure, would be a form of a dual records system which is, at present, the most powerful statistical method available for the measurement of birth and death rates.

In a dual records system, coverage or completion estimates are based on matching reports from two different sources to obtain reports of vital events in the same population. One source is a registration system, which may be the official system or a special one for canvassing the population for information on vital events. The other source is a household survey. In preparing estimates for developing countries where registration of births and deaths is poor, a special canvass of the population is usually made in search of vital events because more events can be identified in the special search than in the official registration system, resulting in better estimates. However, if a dual system is used in countries where the registration of vital events is close to complete, the official registration system is the preferred source of registration data. Another important advantage of this latter source is that it eliminates the field cost of a special canvass. This saving can be used to advantage in conducting multi-round household surveys and in matching and reconciling the records obtained from the two sources.

The primary purpose of the dual records survey is to produce estimates of vital events, but in matching the records from the two sources, it is possible to estimate the proportion of events missed by each source as well as the events missed by both sources by the Chandra Sekar–Deming method (3).

The study design should take a number of factors into consideration. First, a cluster sample should be used because it is prohibitively expensive to follow the total population over the course of a year. Second, the sampling unit must be the primary registration unit or a group of primary registration units so the survey area and the registration area coverage can be identical. Furthermore, it should be kept in mind that vital events reported in the survey will include events occurring both in the sample area and outside the sample area. Registration records will include events occurring to members of the household and to residents outside of the sample area. The registration completeness study will have to be limited to vital events occurring in a primary registration unit of the selected sample to members of the sample households. Third, every household and resident institution in the cluster must be included in the survey. Special care should be taken to identify household members in short-stay institutions in the same area (hospitals, health centers, jails, etc.). Lastly, whenever a household moves out of the sample area, there should be an inquiry to make sure that no vital event occurred before the move, and the vacated household must be replaced by the new household in the dwelling unit. Periodically, a systematic canvass should be made of all vacant and newly built dwelling units in the sample area, and new occupants of these dwelling units must be added to the study population.

The first step of the household survey is a census to identify the members of the cohort to be followed. For a birth registration test, the population at risk consists of women of childbearing age, for whom identifying information such as name, age and relationship to head of household should be collected. Most of the women scheduled to be delivered in the first quarter of the study should show physical signs of pregnancy, and all of them should know of their pregnancy status,

including approximate date of expected delivery. For proxy respondents, special probes should be made about the pregnancy status of other women of childbearing age in the household. In subsequent interviews, women of childbearing age not pregnant in the previous interview should be asked for information such as the date of their last menses to flag women for subsequent follow-up. The follow-up is terminated with the ascertainment of the pregnancy outcome of a live birth or fetal death.

For deaths, the entire population is at risk. In developing countries, children under 5 years of age are at special risk. Therefore, in the initial visit to the household, special probes should be made about infants and young children, as this group is frequently overlooked in enumerations. Pregnant women, young adult males and elderly people are also at special risk of death in developing countries.

Intense follow-up should be made of the at-risk population using every means to uncover the occurrence of births and deaths in the survey population at quarterly intervals. In anticipation of the possible movement of the population, it is well to obtain in the initial interview the name and address of several close friends or relatives not living in the same household, in the event that the sample household should break up or move out of the area. By recording the changes in the population composition of the households, it will be possible to determine individuals added to the cohort through birth and in-migration and those deleted through death and out-migration. Registration records can then be compared with the events identified in the survey.

New members of the household identified at subsequent visits are added to the household roster and followed to the end of the survey. Information about births, such as name of child, name of father and mother, place and time of birth is recorded on a special form for matching with the file of birth records. Members of the cohort not present at any subsequent round are identified and their whereabouts ascertained. If the loss is through death, the name of the individual with other identifying information and facts about the death such as place and time of death are recorded for subsequent matching against the registration records.

Because of common names and possible name changes, the name of a child or of a decedent frequently is not sufficiently unique. Therefore, the person's name must be supplemented by other information, such as name and age of father, maiden name and age of mother, place of birth or death, place of registration, etc. It is important that a set of reasonable criteria exists to determine if there is a match of two records. This is more easily said than done because the more rigorous the matching rules, the fewer the matches, and vice versa.

The dual record system assumes that the two sources of record are independent. This assumption poses no problem unless the survey in some way encourages registration of the event. Therefore, it is important to keep the true purpose of the study hidden from the interviewers. The study should not be labelled as a registration completeness test nor should the interviewers reveal to household members how the information being collected will ultimately be used.

The registration completeness study should cover a period of 12 months to remove the effects of seasonality of births and deaths. Also, reasonable allowances should be made for some delay in registration. Although registration laws specify when the event should be registered (for example, 7 days after the event for deaths, and 14 days or a month for births), events occurring during the study period but registered 2 or 3 months after the 12-month period of the study should probably be accepted as a registered event.

Discussion

The dual records system was devised for the estimation of vital rates in developing countries, and dual records surveys have been conducted with success in a number of them. For estimation purposes, the demographic survey may be a series of single-round surveys or a multi-round survey. In the former, a different sample of households is visited in each succeeding round. In the latter, as in the proposed registration completeness test, the same household is interviewed in successive rounds. In areas where there is no system of street addresses, it may be difficult to identify and cover every household in the sample in every round. In the event that any household is missed, a special effort must be made to obtain information on the members on the household roster in the final round of the survey.

One of the criticisms of multi-round surveys is that repeated visits to the same households may result in interviewer and respondent fatigue, but four visits to a household over a period of a year should not place an undue burden on the interviewer or the respondent. With each visit, there should be opportunities to build rapport and interest in the study. Certainly, the longitudinal studies on record for 20 years or more could not have been achieved if such fatigue were a factor.

Perhaps a more relevant problem is the follow-up in succeeding rounds of the survey. Follow-up can be done in one of two ways. One way is to provide the interviewer with the location of the household and a list of household members and instruct the interviewer to check the whereabouts of the members. The other is to provide the interviewer with the location of the household and the name of the household head and instruct the interviewer to make an independent listing of household members, which is later checked against household rosters obtained in previous interviews. The second method is more complex and costly than the first, but it rules out the possibility of curbside interviews. A solution to the latter problem is stricter field supervision of the interviewers with possible reinterview of a sample of households.

Suitable interviewers must be recruited and trained to elicit appropriate responses to questions regarding pregnancy and pregnancy outcome and to maintain good rapport with the respondents throughout the study. Sufficient information should be collected about each event to be used in the matching operation. Suitable criteria must be developed to determine a match when records from the two subsystems are compared. All unmatched records should be brought back to the field and adjudications made after discussion with a knowledgeable member of the household and/or the local registrar.

The prospective follow-up of a cohort of individuals is an important but not unique feature of the proposed study. This type of follow-up has been conducted in an urban community of New Delhi (4) and in the urban and rural areas of South India (5) where censuses were taken to identify cohorts of women of childbearing age who were then followed to pregnancy and delivery to determine pregnancy outcome. A special problem was encountered in New Delhi, where a significant number of women left the study area to be at their mothers' home at the time of delivery. Because the resulting birth is registered at the place of occurrence of the event, this kind of movement does not affect birth registration completeness tests as long as the delivery does not take place in another area of the sample.

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STRUCTURE AND FUNCTION OF THE UNITS IN A CIVIL REGISTRATION SYSTEM[1]

Vito M. Logrillo

Introduction

A civil registration system performs the identification, collection, and recording of live births, deaths, fetal deaths, marriages, and dissolutions of marriage (divorce). The primary goal of the civil registration system is to have complete, consistent and timely reporting and recording of each vital event that occurs in order to provide information to the individual and to the administrative and program needs of the government agencies involved in the process.

A necessary component to effectively meet these goals is the organizational structure of the system. The existing administrative and legal infrastructure—centralized or decentralized—determines the primary orientation of registration systems that are developed. Certain structural units are essential in any system. In the various countries, the overall structure, the level of government where the functions are performed and the relationships with other units may differ, but the functions described below for the essential units must be performed somewhere within the civil registration system if it is to meet its goals.

Management Office

The management office is the unit within the organization that provides general administration to the various functional units. Although the size of the management office may be small, its function is essential to an effective and efficient system. The responsibility of the management office varies according to the organizational arrangement of the registration and vital statistics systems.

When the registration and the vital statistics functions are in the same agency, the management office must be qualified for operations relating to both activities. Management experience in the areas of biostatistics, demography, research and analysis, and data base management are essential to manage a joint program. Other necessary staffing functions are fiscal management capabilities, clerical support services for correspondence, filing and related tasks, and interagency collaboration on the registration and statistics components as identified. Management must direct the legal activities that define the system and the staff that produces the information for registration needs and accesses the data in the system. Alternatively, when registration and vital statistics are in separate agencies, each must have a management office that meets the registration or statistical requirements as described.

A major activity of the management office is coordination, covering several important areas. Coordination of the development of the form and content of the basic vital record reporting is a key function. This task includes not only the several sections of the registration and statistics office, but also the external clients (physicians, coroners, hospital personnel, etc.) who deal with the documents. The management office must establish a regular procedure and a regular interval for reviewing and updating the reporting instruments.

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The statutes and regulations under which the registration system operates are another major concern of the management office. First, the management office must monitor any legislative changes under consideration by the law-making body that might affect civil registration and offer its ideas during each legislative session. Changes to legislation covering social services or responsibilities of medical personnel or medical institutions often have an effect on registration and statistics. Second, the management office must monitor the basic set of statutes and regulations so registration officials may decide whether social changes require a corresponding change in statutes or regulations. (For example, the advent of sex-change therapy and surgery had implications for vital records statutes.) It is the responsibility of the management office to conduct a periodic review and update of the total statute. But changes need not be made frequently; 10- to 15-year intervals between major updates to the statutes are not unusual. Opening the statutes to legislative consideration may result in undesired change, so statute changes should respond to major societal changes and not be viewed as routine "housekeeping" adjustments.

Another function of the management office is to address funding, budgeting and accounting issues. It is important that the office be appropriately staffed to handle these responsibilities.

Finally, management must encourage innovation in the way the registration office conducts its activities. Development of electronic-based solutions to problems, use of up-to-date management practices, and promotion of customer-oriented responses by staff are some of the areas where management can encourage innovation.

Current Registration Unit

The current registration unit is responsible for processing records concerning recent vital events. It receives the records from the field and records, indexes, edits, verifies and files the records. The very nature of these functions requires that this unit be a part of the registration section. The unit needs a field team consisting of one or several individuals depending on the size of the jurisdiction and the complexity of the geography. The field unit has responsibility for determining methods of record transmission, such as: Who is responsible for reporting each type of vital event? Where is the event to be reported? How soon should a person be required to report the event? On what form should the event be reported? The field team must answer these questions based on legal registration requirements and differences noted in the field monitoring activity. Teaching and training experience are valuable qualities for the field team staff.

The current registration unit also processes new records arriving at the central office. It checks the records for completeness and accuracy and questions notifiers about missing or inaccurate data. It assigns each record a number for purposes of indexing and assigns a date of registration to each new record. Finally, the unit designs and maintains a filing system to allow easy retrieval of the newly filed records. To accomplish these tasks, the current registration unit needs a staff with superior clerical and filing ability. The number of staff members depends on the total number of new records to be filed.

What are some details of the functional responsibilities of the current registration unit? Two major factors cause a variation in how it transmits the record of a vital event to the certification unit. One is the type of vital event involved: whether the event is a birth or a death makes a difference in the transmission process. The other is the type of structure of the system, that is, whether the system is centralized, decentralized or locally based.

Registering births

Where the birth occurred determines the reporting method. Did it occur in a hospital or at home?

Hospital birth under a centralized system. In this situation, it is best for the medical record function of the hospital to report the event. The completed document should be transmitted to the central civil registration office for review and registration.

Home birth under a centralized system. Here, whoever attends at the birth should complete the official reporting document. The usual order of preference is for the document to be completed by a midwife if one is present at the delivery; by the father if he is present at the delivery; by another person present at the delivery; or by the mother. The document completed by the person selected from the above list should then be transmitted directly to the central registration office.

Hospital birth under a decentralized system. In this instance, the hospital reports the birth to the local registration office. The local registrar reviews the certificate for accuracy and completeness. The local office retains and files a copy of the certificate so the local office can issue copies of it, then forwards the original certificate to the national office if certificate copies are also to be available at that level. If the national level operates a statistical system only, then the original is forwarded to the national office for computerization. Alternatively, the data can be computerized at the local level and forwarded to the national office electronically.

Home birth under a decentralized system. The informant files the certificate with the local registrar. Since a local registration area may be small, often the local registrar assists the parent or other person filing the information concerning the home birth and then forwards it to the national office as in the case of a hospital birth.

Registering deaths

An initial issue regarding the registration of deaths is how the death itself is handled in the jurisdiction. Is it typical to use the services of a professional mortician or funeral director? Is there a cadre of medical examiners or coroners throughout the country to look into unattended or sudden deaths? Is the family usually responsible for notifying authorities about the death? The method of registering deaths varies depending on the answers to questions such as these.

If a funeral director or professional mortician handles most dispositions, then that person is typically responsible for filing the death certificate. Otherwise, one of several other methods of reporting the necessary death information is used. The physician attending the decedent for the illness that led to death may complete the medical certification of the cause of death. If the death occurred in a hospital, the attending physician normally supplies the death certification. For traumatic deaths (suicide, homicide, or accident), the cause-of-death certification is generally supplied by the coroner or medical examiner after an examination of the facts surrounding the death.

A member of the family or someone else close to the deceased individual must supply the personal facts about the decedent, which are generally filed separately from the certification information completed by the physician or coroner. Coordinating the timely filing and eventual matching of these sets of information is not an easy task. Many factors enter the choice of a system to do this. For example: How is the hospital system organized? Is it centrally located in a large city to which many patients are brought from rural areas? This situation could lead to the filing of personal data with a local registrar geographically remote from the place where the death certification is to be completed. Consistent information about the decedent's residence location

on both the death certification and the personal fact document becomes all important under such circumstances.

New Certificates Unit

The registration section needs a unit to handle the creation of new certificates to replace ones already placed on file, for example, in the case of adoptions, paternity establishments, and certain court-ordered actions. The new certificate unit also places on file delayed reports of events. The work of this unit requires a good knowledge of how the files are organized to allow easy location and replacement of a record currently on file. In addition, the staff must have a good knowledge of the laws and regulations governing questions such as: What documents must be received to certify that an adoption has taken place? What should happen to the original document? Does the original document need to be placed in a sealed file for future administrative or legal use?

This unit also does the correction and amendment work, an easier task in that it does not require preparation of a new certificate. The staff performs a legal name change or a correction of an error on an original document by crossing out the old information and inserting the new.

Adoptions form a major class of record changes that require the preparation of a new certificate. Jurisdictions vary concerning legal restrictions on adoption, but most have a provision requiring the facts of birth before an adoption record is sealed from view.

Another major issue with which the new certificate unit must be concerned is establishment of paternity according to law. Some jurisdictions allow the addition of a father's name to a record given an affidavit by unwed parents. Other jurisdictions require court or legal action to establish paternity. In either case, it is necessary to develop a method to add the father's information to the certificate.

Data Processing Unit

The data processing unit handles coding and data entry functions. If the vital statistics section and the registration section are located in separate agencies, a choice exists as to the location of these two functions. It is more efficient to locate both in the same agency. That is, the data entry function may be positioned in the registration unit to quickly produce indexes for use in locating records. If this decision is taken, then the coding function should also be located there to feed directly into data entry. If both the vital statistics and the registration sections are located in the same agency, no such decision is necessary. The joint location makes the process easier because the certificate number is assigned in the same agency that houses the data entry function.

Staffing for the data entry function depends on volume and type of system used. In a classic system, data entry is accomplished directly from the information on the original document at the central office. Another option often selected is to have data entry done at the place where the original document is prepared; this is usually a personal computer-based system. The personal computer is loaded with software that prompts the operator for the required information. Responses are subjected to immediate edits by the software. This procedure has the advantage of challenging at the earliest stage any entries that appear to be incorrect. As soon as a document has been entered and subjected to such up-front edits, it can be printed. The software creates an electronic version of the data that is retained and can also be transferred to the central office by modem or on a diskette.

Processing is affected by the intricacy of the coding system selected and the choice of a manual or automated system. Coding staff could consist of one individual who assigns numerical codes to the paper documents. Data entry staff would then pick up the code for entry to the master file. Or, the coding staff might be mostly programmers who maintain automated coding systems. Larger systems usually tend toward the latter option, but the whole continuum still presents itself for choice.

A major area to be considered is coding the cause of death, which should conform to the system convened by the World Health Organization (WHO). The use of the International Classification of Diseases (ICD) for assigning cause-of-death codes allows comparison of death statistics among countries, states, counties, provinces, or other subdivisions. However, using the ICD to assign cause-of-death codes does not guarantee comparability of data. It is necessary to use the coding rules for assigning underlying cause of death, which requires the services of a nosologist trained in the use of the coding techniques.

New automated technology has been developed for coding activities. Computer software programs can automatically code about 85 percent of reported causes of death on the death certificates. This software applies the WHO rules to code the underlying cause of death. It keeps track of the other causes entered so that multiple cause-of-death categories can be processed as well. A trained nosologist is still needed to code the reported causes of death that cannot be processed by the software.

Certification Unit

The certification unit responds to requests for copies of vital records for legal and judicial purposes. It must be able to locate a specific vital record from the many contained in its files upon the request of an authorized individual or agency. The registration section must be located in a place easily accessible to its clients. It usually needs special security provisions to protect the original records it stores from theft and from damage or ioss by fire or floods.

Issuance of certified copies of vital records

A major function of the certification unit is the issuance of certified copies of vital records. A certified copy contains a statement from the custodian of the record certifying that it is an authentic copy of the facts on file. An official seal of the custodian's office is usually affixed to the certified copy. The care and detail followed in the issuance of certified copies is commensurate with the legal purposes for which the public uses the copies. People use certified copies of death certificates to settle matters concerning the estate of the deceased. They use birth certificate copies to establish in law the birth facts of an individual. Although the birth certificate does not conform to the requirements one would normally specify for an identity document, it has become generally accepted as an initial proof of identity in accordance with the laws and regulations that have generally controlled its issuance. Possession of a birth certificate is often the first step in establishing an entire series of documents that form an individual's legal status.

Storage, index and retrieval of vital records

With the issuance of certified copies of vital statistics, one must next consider the storage system for the original documents. The storage system for vital records progressed from written ledger entries for each event to separate written documents that recorded more data elements about each event. By the middle of this century, placing multiple documents into a bound folder

to protect the longevity of the individual paper documents became standard practice. Within the third quarter of the century, the long-term storage system of choice became microfilm. The final quarter of the century has seen progress toward storage on automated file media. The rapid progression of storage media during the century has resulted in another common phenomenon: most vital records systems now employ several storage methods. Sometimes this multiple-storage option is one of choice, wherein one medium serves as a back-up to another. In other cases, the multiplicity of storage methods has simply been a result of the changes in available methods. Many systems thus contain an unplanned amalgamation of several methods; such systems display a high degree of inefficiency when it comes to the issuance of certified copies. The required next step is the indexing and retrieval of the documents from the storage system.

Early indexes were prepared as typewritten lists, but today they are maintained on a computer or on microfiche. The index is generally organized alphabetically by the last name of the registrant of the event. The index information contains enough other facts to distinguish among events that would otherwise appear to be similar. Also, the index contains the certificate number assigned to a particular record. Using the index, it is easy to begin with the date of an event and the name of the registrant, find the corresponding index entry and consequently the certificate number which is then used to locate the document in the record file.

In an electronic system, the computer uses a searching function to find the name and certificate number and then refers to a computerized index and goes directly to the correct record. The entire process can be accomplished in a matter of seconds. When a computerized system is used to issues copies, the question arises: What happens when the computer is down? There is a need for a back-up system to the computer record in the event that the latter is somehow lost or destroyed. Back-up mechanisms for the computerized system include magnetic tapes, diskettes, or microfilm. In the latter case, there is a microfilm copy of the original document for each computer record. This, in effect, preserves all the information contained on the original certificate. There is also a back-up index on microfiche or on a personal computer. In case of a "crash" of the computer system, staff members can still serve the client using the back-up system. Archival microfilm copies can also be stored off-site to guard against disastrous loss of other record copies.

Preparation of forms for legal use

The certification unit is responsible for preparing forms for legal use beginning with the original certificates of birth, death, marriage, and divorce. Since these certificates also contain information important to the registration unit and the vital statistics section, the design of the collection forms should be a joint operation. Experts in the fields that these collection efforts will affect should be consulted on how to collect the data and what questions to ask. For example, coroners, physicians and funeral directors should participate in the development of the death certificate form. Medical personnel at hospitals—midwives, obstetricians and pediatricians—can contribute to the design of the birth certificate. Unless all units have collaborated on the design of the form, functional coordination will be difficult.

Any number of changes to certificates require the certification unit to design forms to appropriately accomplish those changes. Court-ordered changes, such as legal change of name or adoption, call for a change to the birth record. The unit should design the form so that it contains the necessary information to locate the original record in unit files and also the required new information.

Staffing

The responsibilities of the certification unit are many and varied. So too must be the skills of the staff of the unit. The supervisor must have the ability to interpret the statutes and regulations governing the issuance of certificates to individuals and to agencies. If the unit offers electronic issuance, then the searchers have to be familiar with the use of computer equipment and have to understand the file and index structure to successfully locate requested records.

Internal Review

Besides the interactive roles described above, there is a need for an internal review mechanism. The units must cooperatively develop methods to monitor the civil registration function for completeness, accuracy and proper record processing. Internal review procedures are applied to monitor the functions of the daily system operations and to detect any aberrations as quickly as possible.

Registration staff has a most important internal review mechanism, the tracking of the newly registered certificates. As a certificate is going through initial processing by the registration staff to have its information quickly and accurately transferred to the master file, it must be handled at many different points in the process. It is important, therefore, that an internal system exist to track where a particular certificate is at any given time.

Certification management has the responsibility to respond well to the public in the area of customer service. To do so requires having in place internal system review procedures that yield both work flow data and revenue data. Such information is required background for management decisions concerning where best to use the work force of the section.

Certification staff also has areas where internal review is important. The increased use of fraud- and counterfeit-resistant paper for the issuance of certified copies of vital records has fostered the need to protect blank certified copy forms from theft. Certification staff must develop internal systems to account for the use of such paper.

Besides the internal monitoring and review mechanisms required to maintain the civil registration system, it is crucial to maintain communication among the various field operations. There are many components to be considered, such as handbooks, training, guidelines, seminars and newsletters.

Relations With Other Agencies

Overlapping interests between the civil registration office and other government organisms, particularly social services agencies, require that procedures be established for interaction and collaboration. Some of the areas of mutual interest are the following:

- Establishment of paternity of a child requires many of the resources of social service agencies. The registration system can be a useful source for providing the required documentation.

- Necessary interventions by social service agencies to protect children from neglect and abuse often lead to placements for adoption. Collaboration with the civil registration system is needed to develop a process to ensure that the required information is accurate and readily available for timely responses in these situations.

- The chief registration official must cooperate with law enforcement officials or officials of the judicial system who demonstrate a need for vital records information in the pursuit of their lawful duties.

- Information about deaths occurring in a voter registration area is needed to allow purging of the voter registration roles. This serves not only as a measure of efficiency but also as a deterrent to voter fraud.

- The registration office maintains close ties with the passport agency and with immigration authorities as they verify the authenticity of documentation that comes under suspicion.

Conclusion

The structure of the civil registration organization has a multi-unit nature. The infrastructure has five basic units: the management office, the current registration unit, the new certificates unit, the data processing unit and the certification unit. Although these individual units respond to specific functions in the registration process, they should not be considered mutually exclusive. There exists a network of dependencies that weaves the units together and argues immediately and forcefully for internal relationships. These relationships should be founded on communication, standardized rules and procedures and clearly defined monitoring functions.

MANAGEMENT ROLE AND RESPONSIBILITY IN CIVIL REGISTRATION AND VITAL STATISTICS SYSTEMS[1]

Vito M. Logrillo

Introduction

Civil registration and vital statistics (CR/VS) systems require continuing and consistent management activities to ensure that the program meets each of the needs described for registration services and vital statistics development. These activities, whether initiated at the central office level in a centralized system or at the state or province level in a decentralized system, determine the effectiveness of the systems. Within the highest level of the hierarchy of the organizational infrastructure (central office), management must establish standards for system components, guidelines for operations, and protocols to address related issues. These directives are then passed on to all administrative levels and are made known to the local registrars and subregistrars.

Organizational structure of CR/VS systems

The management office is that part of the organization that provides general administration to the various functional units. Although the size of the management office may be small, its function is essential to an effective and efficient system. The responsibility of the management office varies according to the organizational arrangement of the registration and vital statistics systems. When the registration and the vital statistics functions are in the same national agency, the office must be qualified for management operations relating to both registration and statistics.

Centralized System Structure

Management Office Administration:

REGISTRATION	STATISTICS
• Certification	• Quality control
• Current registration	• Analysis
• New certificates	• Data preparation
• Data preparation	• Data dissemination

Other necessary staffing functions include fiscal management capabilities, clerical support services for correspondence, filing and related tasks, and interagency collaboration on the registration and statistics components as identified. Management must be directed at the legal and statistical activities that define the system, at the sources that produce the information for registration needs, and at the users who access the data in the systems for analytical and quantitative needs.

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[1]This article was prepared by the author in 1995 as a consultant to the IIVRS.

For each system, the management requirements include basic functions and, depending on the type of structure in place in a particular country, other special type functions to meet specific needs. Some basic structural outlines are considered essential to manage effective CR/VS systems. In the case where registration and vital statistics are in separate agencies, each of the management offices would need to meet the registration and statistical requirements, as shown below.

Registration Section

Registration Management

CERTIFICATION	CURRENT REGISTRATION	NEW CERTIFICATES	DATA PROCESSING
• Certified copies • Record storage • Indexes • Forms design • Fraud prevention	• Field team • File new records • Delayed registration	• Adoptions • Paternities • Court orders • Corrections	• Cause of death codes • Demographic codes • Data entry

Statistics Section

Statistics Management

QUALITY CONTROL	ANALYSIS	DATA PROCESSING	DATA DISSEMINATION
• Data edits • Completeness checks	• Table generation • Statistical methods • Report production	• Cause of death codes • Demographic codes • Data entry	• Mailing lists • Ad hoc requests • Newsletter • Press releases

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The functional requirements for each office are, however, reduced since the primary responsibilities relate to only one system. In the situation where the two systems are separate, but in the same agency, it would be possible for both fiscal and clerical duties to be handled by a single staff unit, with the responsible management functions conducted separately by each office.

Each of the functional units cited in the organizational structures for registration and vital statistics systems have similar management responsibilities, though the activities may differ. However, the close relationship that must be maintained between registration and vital statistics functions requires an interactive management role whether the systems are in separate agencies within a centralized or decentralized national program.

Management Role and Responsibilities

Legal requirements

The legal requirements of each system in terms of national, state, and local responsibilities need to be clearly identified at each level. Seminars and training sessions conducted by management are a first step in meeting these needs. Staff members at the central office are the primary focus for training, since they will be the contacts for answering questions and providing legal assistance related to registration activities to the local office staff. Responses must be consistent with established laws, rules and regulations issued by the central office, and interpretation of specific legal elements prepared at the management level. Definitions for data items, appropriate documentation for certificate amendments or modifications, and procedures for information sharing among the various units relate directly to management. Feedback from local offices with regard to problems and issues that cannot be handled at the local level must, at some point, be shared with management. In this way, adjustments and enhancements to improve the system can be incorporated into their planning and policy development activities.

A second general area requiring management decisions relates to security and confidentiality of the records and documents maintained at each level within the system. Guidelines are needed for (1) storage requirements, (2) lockable rooms and cabinets, (3) authorization for selected staff to access certain records, (4) release of records to the public, government agencies, and private institutions, and (5) procedures for daily operations. Many of these elements should reflect what is done at the central office; if they are not already in effect, they should be initiated by management. Storage of records is a critical factor to ensure that the quality and utility of the records are sustained. Record deterioration adversely affects the capability to read the record or to use automated equipment such as automatic feeding mechanisms for subsequent microfilm or optical image processing. The storage environment also relates to security issues, so the location should have locked doors or storage cabinets.

In those areas where the local registrar also has responsibility for handling vital statistics forms, the primary focus should be on maintaining accurate logs on the volume of forms received, and on transmitting the data in appropriate time frames to the central statistical office. Some type of verification should be made, including consistent numbers of forms with the registration forms.

The release of records is another area requiring management oversight. Release of personal information that may be requested by government agencies, news media, individuals, or other institutions from vital records or from the statistical forms when these are collected separately, such as cause of death of an individual, legitimacy of a birth, or other family information related to a vital event, in some instances can have an impact on the individual or family involved. In these instances, nonrestricted release of information at the local level could result in some difficulties. Such cases should be referred to management, which can address the issue directly, or to the legal office at the central level to assist in the actions taken.

Since a number of factors are addressed daily in the operation of a registration program, some basic elements of the process can be specified. Hours of operation are set to provide appropriate services to the public. The forms for data abstraction, recording of events, and registers are elements that should be standardized and issued by management. Timing for the transfer of records to the next level of operation within the system, specific procedures for the receipt and entry of data into logs or indexes, and the reporting of events in both individual and aggregated formats are developed and issued by management for use at the local site. Specific criteria must be established and distributed by management to each level of the system authorized to issue copies of records. Where a controversy or action is taken against this

restriction, referral should be made to management at the central office. This approach sets a structure so that local officials are not intimidated, and management has the opportunity to address the specific questions being raised.

Interagency collaboration

Civil registration and the vital statistics system, by the very nature of the data and information obtained, have significant interactive relationships with other governmental agencies, programs, and institutions. These include record matching, information exchange, the validation of reporting of events, and accuracy of related data. The management role in this instance is to establish interagency communication and activities directed at addressing these specific areas. Record matching and linkage to other health databases can provide additional information relevant to both the registration system and the related program. For example, mortality data can be matched with health registers such as tuberculosis, cancer, and AIDS to update these registers in terms of patient status and for research and epidemiologic studies.

Matching can also be used for administrative purposes. Benefits and services being provided by government or private agencies to the public can assess the status of the recipient and determine if there is misuse of funds or cases of fraud. Misuse of funds may relate to fiscal support based on family size, i.e., number of children in the family. Cases of fraud may relate to a recipient who is deceased but social benefits continue to be received by other family members. The matching of birth and death files with the related social service files can provide data to assess such events. The interrelationships and control of the use of these files is an important component that is set by management in the registration system.

Similarly, information exchange with other programs and agencies can be important in the management of the system. Establishing committees to work with appropriate programs such as family planning, immunization for children, and hospitals and clinics, can result in valuable information to assess the completeness of the reporting of vital events. These sources of independent information identified by management as relevant to the monitoring and evaluation of the registration system are necessary to maintain an effective program. The nursery logs in a hospital or clinic, for example, can provide information to assess the quality of registration in a particular area. Management, through periodic meetings and communication with these types of information sources, can incorporate a process for system integrity and oversight utilizing these resources.

The activities described above relate to each of the organizational infrastructures that may exist. It is the responsibility of management at the appropriate administrative level—national, state or province, or local—to initiate and implement interagency collaborative arrangements. Various aspects of the programs, depending on the agencies involved, will have issues of legal, social, and economic concern. Sharing of information, conducting record matches and linkages, undertaking data abstraction or, where available, data entry activities to serve the functions identified have associated costs and time constraints. These issues must be assessed by management in relation to the benefits received for justification to conduct these various activities. Management must make a major commitment to incorporate these activities into its overall agenda to realize the full potential of the goals and objectives of the CR/VS programs. The multiple sources of data and information that may be used must become an integral part of the management protocol.

Planning, policy, and development

Evaluation and assessment of the registration and vital statistics systems by management imply a need for continuing improvements or upgrading of components of the system. These may reflect staff needs, technical assistance and training, equipment for automating certain processes, legal modifications, and organizational restructuring. To accomplish these ends, management must have effective procedures for program planning and policy formulation. These procedures may include a policy committee, workgroups for planning and development purposes, or various combinations of these resources to review and prepare the necessary background and projected data to address specific issues.

A policy committee may be established to (1) assist management in maintaining oversight of the system in terms of modifications, (2) consider the addition of new components to address required changes, (3) provide input from related areas having some type of relationship to the program, (4) discuss current developments, and (5) prepare legislation, rules, and regulations for accomplishing designated objectives. The committee would normally have a chairperson and support staff to prepare materials for use by committee members to distribute outgoing materials, to arrange for sessions, and to establish subcommittees to work on specific topics that are initiated at the meetings. Support for travel, lodging, and related expenses are essential, with sources of funding established.

Policy questions are generally item specific but may cover a broad range of issues. Related to registration, these questions may be directed at current procedures for registering of events, concerns regarding the form and content of the certificates for data collection, legislative change to meet new needs, and new directions with other agencies and programs. In a centralized organizational structure, the policy committee would focus primarily on internal operations from the national level to the local offices, with an ongoing systematic process for managing the program. This is possible since control of all functions rests within a national office or is shared between two separate agencies within the national structure. Issues and topics for policy discussion are directed more to internal functions and operational needs.

There are a series of operational items that need to be developed as a new or modified system moves forward. Procedures and guidelines are required to set the required timing for the reporting and recording of events; to identify storage sites with minimum levels of control for the maintenance, security, and access of records; and to transmit records to the national or state/province, district, or region depending on the structure of the registration and vital statistics systems. Record processing, including recording, coding, index preparation, search and retrieval methodology, and copy and abstract procedures, are developed at the initial stages to ensure consistency, utility, compliance, and timeliness for each aspect of the program. Timeliness of registration services to the public, appropriate data items for the preparation of vital statistics at the local and national levels, information sharing among programs and agencies, and communication capabilities for all these related interests are to be developed within the context of the policy statements issued, planning protocols, and strategies for implementation.

Each of these processes requires management to have held discussions and meetings and to have conducted review and evaluations of various components of the systems to move forward with the recommendations. Contacts with other agencies, with internal units that have direct involvement with the system or system components, and with legal and administrative staff serve to establish relationships that will help result in effective and efficient operations. Direct contacts within the centralized system are more likely to occur or to be more easily arranged. Within the decentralized structure, major efforts may be required to reach the same goals since there is a

much broader and more diversified number of persons involved in the overall process of the registration program and in the development of the vital statistics system.

Management control functions

In addition to the general requirements of management to maintain the overall registration program, there are a number of specific areas that require direct control. These areas relate to legal components that can have a negative impact on the program if not handled in a positive and consistent manner. One area is that of confidentiality of the data obtained in the recording of vital events and in the security of the records on file. Selected data collected through the civil registration program are sensitive and could cause difficulties for individuals. Abortion data and other health data items obtained on the birth and death records such as cause of death, complications associated with pregnancy, adoptions, marital status, and other social and economic data should be limited to statistical purposes only. This procedure serves to eliminate the possible misuse of the data on an individual basis. Restrictions are required for this type of information.

Where statistical data are collected on forms separate from the registration forms, control functions need to be expanded to ensure that completeness and quality of the data are accomplished. Independent assessments of the statistical data, either by conducting sample surveys or by integrating the data with other sources, including the registration records, can serve to maintain a quality statistical system. The role of management is to implement, monitor, and evaluate the results of these various processes and adjust or modify them to meet established data quality needs. Reasons for the concern with respect to confidentiality and security relate to fraud control.

The potential for fraudulent use of the information contained on birth and death records covers a broad area. The identity of an individual can be changed through access to other birth documents. For example, access to resources and services that a particular family may claim can be misused by falsifying the number of births that have occurred. Also, insurance claims related to a death, or inheritance issues among families, can be initiated with false death or birth records. These potential fraudulent uses must be controlled.

A second area for management control is that of monitoring of events. As previously noted, the capability to assess the reliability and validity of reporting of events can be based on the monitoring of reports from various geographic areas. Patterns of previously reported events are used to project future numbers of records and data. Should significant differences emerge from the monitoring system, then management can take specific actions to determine what has caused the changes.

Vital records, with both health and demographic information, can be used by management to identify changes. The specific characteristics of an area must be established based on previous reports, and then comparisons made to see if significant deviations occur. Subsequent changes can then lead management to implement on-site reviews to evaluate the local operations and, where necessary, take action to correct deficiencies. If the reasons are inherent in the area due to economic or other factors, then the control standard used in that area needs to be adjusted.

The results of undertaking these types of control strategies form the basis for management to establish enforcement procedures related to activities representing the highest levels of vital records and statistical data failures. The factors may include fines, reassignment of local registration units to another registration area, or a requirement for training over a specified period of time. The latter is considered the primary option since the local office has the knowledge of the area covered. Such training is a contributing factor to an effective registration program and should

be held wherever possible. These control activities represent close involvement of management with the various components of the registration program and can lead to mutual understanding of the problems and concerns that may be occurring in local areas. This knowledge provides management with background to modify or adjust the system.

Logistics for record management

Within a management unit, a series of functions must take place to accomplish stated goals and objectives. Management of the vital records component of the registration system is a significant role that needs constant attention. The recording of events, logging in and out when transmittal of records to higher levels of authority occur, and timing for these activities are essential management tools. Other functions to be addressed are the auditing and printing of the records. The purpose of audits is first to establish a protocol to ensure that the legal requirements and key elements to the registration process are operating in a satisfactory mode and, second, to make all participants in the system aware of the conduct of audits. This awareness can have a positive impact on eliminating misuse or noncompliance by local agencies, programs reporting the events, and health care providers. For the printing of forms, there should be a common central source to reduce the possibility of misuse of the forms, which may occur when the printing is allocated to other sources. Management must consider this a significant issue and provide the necessary resources to adequately resolve it.

Internal audits are directed at activities within the various record processing units of the system. These activities include adoptions, amendments, coding and data classifications, and the preparation of indexes. For adoption and amendment issues, audits cover the documentation or court orders issued to initiate the process. These documents and orders should undergo a periodic review based on a sample of previously processed records. The assessment to be made relates to the regulations and rules regarding these activities, and the appropriateness of the documentation in making the modifications to the original records. Management defines each of these areas and issues guidelines to the units conducting the activities. The audit process is essential whether registration is in a centralized or a decentralized system.

Standards must be established for the common data elements that are coded at the various government office levels. In some countries, such coding is limited to the national office; in others, due to the large volume of records or to difficulties in record transmittal that can affect the corrections and updating of records, the coding is done at the local level. In either case, however, a process must be defined that allows for some effort to be made to audit the activity. Standards that are set for common data elements may also reflect national requirements. The International Classification of Diseases (ICD) of the World Health Organization provides a common code structure for causes of death. This coding scheme, which undergoes a change approximately every 10 years, is the basis for coding causes of death from death records and is used for comparing cause-specific death rates among various countries.

The extension of the audit process outside the registration system to the reporting sources is an important aspect of data audits. The abstracts taken from medical records and placed on the vital records—births or deaths—must be accurate and complete or resulting vital statistics are not valid and registration services are compromised. Where hospital records are part of the reporting process to a national office or health program, samples of these records can be compared to the vital records, and the accuracy and completeness of the registered data can be assessed. If there is no such program, field surveys can be done to obtain hospital, clinic, or other health care provider records and used to compare with the recorded data in the registration system.

Other sources that may provide information for the audit function include administrative records for social services benefits, school enrollment records, and census data. To the extent that these sources can contribute to the process, management should incorporate them into the audit protocol. These activities are adaptable to those systems that use separate forms to obtain registration and vital statistics data. The process can be addressed in similar fashion, with differences relating only to the item contents of the forms used. Both registration and statistical data collection forms must undergo a constant and consistent pattern of review and monitoring to ensure the completeness, quality, and validity of the data.

Management of records within the civil registration system is an essential and productive activity, with results identifying the next steps to be taken to continually improve and upgrade the various components of the system. The entire process, from the initial recording of information on the vital records forms to the coding and data entry for use in preparing national vital statistics, requires a careful and consistent management approach. Without it, the data, information, and resulting statistics can be questionable and the utility of the system negatively impacted. Though the related costs and time commitments may be significant, the value of the results is what sustains the ongoing registration process.

To address the records issue, the role of management is to assess the potential application of automated procedures to enhance and upgrade system operations. Manual recording of information into ledgers versus data entry into a computer file can have a significant impact on the processing involved. Computer entry allows for the automatic preparation of indexes that can be printed and distributed to local offices that do not have the capacity or resources to use automated equipment. In addition, at the office where automation occurs, the indexed records can be searched automatically and short-form certifications produced with minimal manual requirements. Cost, timing, and productivity are significantly improved. The role of management is to determine the equipment and maintenance costs, associated training, and related resources compared to the current methods employed. Both short-term and long-term considerations should be made to ascertain the final methodological direction to pursue in the processing of the records and data.

For the automated approach, some type of quantitative assessment is required. This would involve identifying the current rate per staff member as to the particular function performed. These functions may include the hourly rate of characters entered into an automated data entry system; daily number of records filed, recorded, and indexed per staff member; time period to manually search for a particular record or sets of records; time required to make modifications and amendments; the volume of copies of records prepared per staff member; and reports generated for administrative use. Options to improve these activities can then be assessed depending on the methods selected for comparative review and assessment. The final results of this type of management function are then brought to the administrative unit to obtain necessary resources. When a comprehensive review has been conducted, there is a solid basis for justifying the resources identified for improving the system.

External participation in system functions

Many of the functions conducted in both the civil registration and vital statistics systems involve various programs and agencies either as direct participants—health care providers, hospitals, clinics, court houses, parishes—or indirect participants through contacts with other sources—social services, voluntary health service organizations (immunization, family planning, or chronic diseases)—and related programs such as school enrollment. To effectively utilize these

sources, management may institute a series of programs to involve them in activities to benefit the CR/VS systems.

For direct participants, the registration office can provide standard worksheets that would allow for the collection of the data required on the vital records and/or vital statistics forms. A hospital worksheet, for example, serves several purposes. It provides a standard format for abstracting related registration data from hospital medical records and other forms, thus eliminating incomplete recording or inaccuracies due to staff turnover. The worksheet, with instructions attached, can be easily applied. Second, it gives the hospital a good summary of information for its files in addition to an effective method for meeting mandatory reporting requirements for registration. The same type of form can be provided to the other direct service providers, which would help maintain an accurate and consistent basis for obtaining the data.

Indirect participants can also contribute to the system. The data collection processes and information used by these participants may obtain (1) complete family information, (2) data on births and siblings, and (3) mortality data on specific causes of death related to particular disease registers. Contacts with these programs, the sharing of information, and the matching of data files can provide a profile of expected vital events in a particular local registration area. This procedure can serve as a method to validate reported data by linking selected records based on a previously designed sample or by assessing trends from the data combined with the vital statistics for the geographic area covered. These indirect sources, through either programmatic or administrative reporting, may provide valuable information for use in the registration system. According to the particular needs of the system, management should determine which sources to utilize.

A number of approaches can be taken to keep the public informed as to the requirements and, more importantly, the significance of registration. Management's role is to define information dissemination strategies. Dissemination of information through pamphlets at hospitals, clinics, and local health service agencies and providers is an initial step in getting the public informed. In urban areas, news media—television and radio—can be effective for one segment of the population. Where such resources are not accessible by the public, other means need to be established. Recruitment of local officials or service providers such as midwives can be effective in disseminating and explaining the information and benefits of the registration system.

In many areas literacy is nominal, so means other than written materials must be used to inform the public. Local meetings, as a result of either community or village activities, should be considered an effective source for informing people about the registration process. Or, if meetings do not already occur on a periodic basis, such community and village meetings should be initiated by the registration program officials. In some cases, local police units are used to provide information to the population regarding registration in their area. However, this procedure has resulted in difficulties in some instances and must be assessed in terms of the potential for success or failure in particular areas before implementation.

In rural areas the literacy issue can be extensive, and local meetings and orientation sessions need to be conducted. The management office should direct the local registration official to implement these types of activities in the local registration area. At times when village, district, or regional festivals or holidays occur and where groups of people get together, staff from the registration office should be there to both provide written materials and hold briefing sessions for the population. An essential component of the presentations, again through either written or oral discussions, is to indicate the importance to the individual and the family of having their vital events registered. Issues such as personal identity, inheritance, family ties, legal benefits, citizenship, school enrollment, driver's licenses, employment, and social and health service benefits all may require an individual or family to produce documents establishing these items and relationships. These potential uses then become major incentives for individuals to register vital

events occurring in their families and to share this information with others in their household, village, and community so that all become informed and oriented to the system.

Comparative analysis for selected data elements

In managing the registration and vital statistics systems, there is always a need to have information that can serve to identify areas of success or failure in the systems. Geographic location and source of the event related to the population covered, changes that may occur in the reporting of events by type of event, and demographics of the reporting population are all elements that can serve this purpose. The reporting of specific disease categories through the registration system allows for the identification and subsequent monitoring of developing epidemics or changes in trends and numbers of events. Use of the International Classification of Diseases, as noted earlier, provides a standard coding system to note what the occurrences are at any time in the system and establishes the disease status of the population in selected reporting areas.

The vital statistics derived from the registration records or from the separate statistical reporting forms using the ICD codes can be prepared by the geographic definitions used in the system, i.e., the place where an event was recorded and the place of residence of the individual. The identification of both sites allows management to make several assessments. First, the geographically defined place of residence tentatively identifies the location where the disease may be prevalent. Based on this information from the vital statistics system, health and/or medical services may be directed to the area. The seriousness of the event determined by the volume of reporting through the registration system—for example, the number of deaths from the particular disease—may also initiate an epidemiologic investigation for further follow-up.

The place where an event is recorded may indicate the resources being used to treat the disease. The impending delivery of a child or the severity of an illness of an individual may require a patient to be brought to a hospital or clinic in another location. Hence, the registration of the event—either a birth or a death—may not occur in the registration area where the patient resides. This type of information—recorded area and resident area of the vital event—is useful for several reasons. It identifies the catchment area of the health care provider—hospital, clinic, physician, or other provider—that is accessed by the population in these areas. The impact on health and medical resources can be assessed for that particular site. It also eliminates the possibility of misidentification of the location of a disease.

Should only the recorded location be stated on the death certificate, an assumption may be made that the health problem is at that site. Such an assumption could lead to misdirection or mismanagement of available health and medical resources. The analysis of the data based on both recorded and resident classifications is an effective quantitative approach serving important planning and decisionmaking processes. Data utilization is an important aspect of the registration system and the management function, and it must be integrated into the infrastructure of the system.

Another area that provides valuable input to the management of the system relates to vital statistics data based on selected variables. Natality data derived from the reported birth record or the statistical form can be tabulated in a variety of categories. Age-specific fertility rates, parity, prenatal care services, place of delivery, and the care provider indicate what the general patterns are at all geographic levels. Where programs have been initiated by other governmental agencies or organizations, their impact can be assessed through the analysis of relevant variables. Family planning can influence the volume of events registered in areas where such programs have been implemented. Prenatal service, if included as an item and reported on the birth record, provides

an indication of the availability of the service in specific areas or the use being made of it by certain segments of the population. Where the services are available but not used, information and training can be directed to the sites to improve this activity.

Population characteristics derived from the census can also provide baseline data to determine the expected number of birth and death events. The age and sex distribution of the population, along with local, state, or national fertility and mortality rates, provides an indicator of the number of births and deaths that should appear in the registration system. Some variability is incorporated into the estimation procedures but, where significant differences occur, some type of follow-up would need to be implemented to determine the source of error or problem. This procedure can also draw on other options like the dual reporting system if the completeness of registration in the country would not provide for reasonable estimates.

As part of the management of the registration program, a determination must be made periodically as to what health and medical issues are being addressed or have become major factors in the health status of the population. This then provides management with the information to redesign the data collection forms used in the registration system to meet new requirements. Record form modifications may occur every several years, or more often depending on the variability of the health of the population. Item content should be structured to meet current and projected information needs for programs and other agencies as these change over time. Keeping pace with these developments keeps registration and vital statistics an integral part of the health and population programs of the national, state or province, and local government agencies, programs, and related activities. The nature of the data can be assessed as key elements for program review and evaluation, descriptive summaries of health status, and quantitative analysis in each of the areas identified in this section.

The value of civil registration and population registers for legal, statistical, and administrative purposes at the national or other geographic level of a country is significant. These systems, however, require constant monitoring and updating to maintain a high quality of information for the purposes noted above. The independence of the systems provides the capability to compare and validate the information collected in both systems and to prepare specific rates of selected events since they contain the numerator and denominator data. Completeness of reporting is an important item that can be shared by both systems, as can the accuracy of reported events. Rates in the areas of natality and mortality are readily available on a timely basis, since the population data are continuously updated in the population register and the occurrence of vital events in the registration system. For statistical purposes, this is an advantage, since in many instances only population estimates based on previous census data are available for denominator use. When the census is conducted only periodically, the interval between censuses can vary from 5 to 10 years. The longer the interval, the less reliable are the population counts and the rates based on those denominators.

Reporting and record processing strategies, coding, and indexing features are critical to an integrated approach for the civil registration system and population register in countries where both systems exist. The use of computers to effectively integrate the related data items involves providing copies of records or, where possible, machine-readable magnetic tapes or disks for processing and linking the data. Where hard-copy records need to be transferred to a common source for processing—to either the registration office or the population office—issues of confidentiality and security need to be addressed. At the processing center, standard coding procedures must be set and complied with by both systems to have comparable and comparative information. Indexes, which provide access to individual records for updates, corrections, and changes in either an automated or a manual mode, also need to be standardized for compatibility. Management, by ensuring that these arrangements are operational, can promote the utilization

of the information for a variety of purposes and set all the requirements with which the data users must comply.

Summary

In principle, the primary goal of the civil registration system is to have complete, consistent, and timely reporting and recording of each vital event that occurs to provide information to the individual and to the administrative and program needs of the governmental agencies involved in the process. For the vital statistics system, the goal is to have available complete, accurate, and reliable data. These data can then be used for purposes of (1) carrying out demographic, statistical, and health research; (2) planning, developing, and evaluating medical and health programs; and (3) preparing and disseminating timely reports based on the detailed data collected from the recorded vital events.

The described coordination functions related to management roles and responsibilities within the registration and vital statistics systems include several important areas. Coordination of the development of the form and content of the basic vital record reporting is a key function. The coordination of this task includes not only the sections of the registration and statistics office noted in the organizational structure, but also all the external participants (physicians, coroners, hospital personnel, etc.) who deal with the documents. It is necessary that the management office establish a regular procedure and a regular interval for review and update of the reporting instruments.

The statutes and regulations under which the registration and vital statistics systems operate are also a major concern of the management office. The statutes and regulations must be monitored in two major ways. First, the management office must monitor any legislation changes under consideration by the law-making body that might affect the registration and statistics system. Changes to social services legislation or to legislation covering the responsibilities of medical personnel or medical institutions may often have an effect on registration and statistics. The management office must monitor such legislation and offer ideas during each legislative session. Second, management should address proper funding, budgeting, and accounting functions. As indicated in the discussion on staffing and organizational structure, it is important that the management office be appropriately staffed to handle each of these roles and responsibilities.

AUTOMATION OF VITAL REGISTRATION SYSTEMS IN THE UNITED STATES: A SUMMARY OF SELECTED STATES' ACTIVITIES[1]

Vito M. Logrillo

Introduction

The application of computer technology to the administrative and operational activities of vital registration has received major attention in state programs in the United States in recent years. In the past, computerization had focused primarily on the vital and health statistics and research components of state vital registration systems, with registration functions continuing in a manual mode. Some developments in automation had occurred over the years, but most often these efforts were directed to the solution of individual problem areas such as record storage or indexing. Many of these efforts were based on the use of microforms—roll microfilm, cassettes, and microfiche. More recently, automation has been extended to encompass all aspects of vital registration with the goal of developing a completely automated registration system. Several states have come close to realizing this goal, with many of them now directing major resources to implement such systems. Over the next five years, most states will have fully automated significant portions of their registration activities, with several approaching a "paperless" system.

This trend is not limited to the United States. Many countries have experienced increasing demands on the registration system for services and have responded by moving toward automation. Some of the developments described in this article for U.S. states may have application in other countries and may serve to expedite the transition from manual to automated systems, minimize associated problems and reduce costs. Sharing of information and interaction among the international registration community can provide significant benefits to all.

Background

Vital registration in the United States is decentralized (1), with each state having total responsibility for the administration and operation of its system. Each state has its own laws, rules and regulations which govern registration processes and functions. Within the state organizational structure, the vital registration program is located in the state health agency, reflecting the early uses of birth and death records in identifying health problems and assessing the health status of the population. Within this decentralized state system, two national organizations work closely with the states to coordinate and standardize registration activities: the National Center for Health Statistics and the Association for Vital Records and Health Statistics.

The diversity of the various state systems has contributed to differing levels of automation of vital registration activities. The needs and problems associated with meeting demands for registration services are often quite similar among the various states, but the availability of staff, resources and equipment often dictates the extent to which automation can take place. For this article, 10 states[2] were contacted, and they provided information regarding their current status and future plans for the automation of vital registration functions. These 10 states register about 1.5 million birth and death records annually (one million births and one-half million deaths). The

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[1]This article was abstracted from IIVRS Technical Paper No. 40, April 1990.

[2]The states were Colorado, Illinois, Kansas, Massachusetts, Michigan, Minnesota, New York, South Carolina, Utah, and Wisconsin.

various levels of development represented in this group of states reflect fairly well the current status and direction of automation in state vital registration programs in the United States generally.

Automation activities

Specific areas in which states have automated vital registration functions include data entry, record processing, indexing, record retrieval, electronic certificate forms, optical disk storage, data transmission and microfilm systems. At this time, no one state system can be described as "fully automated" and some state registration systems are not automated to any degree. But the direction is clearly towards a paperless system except in those instances where a hard copy is required for the issuance of record copies. The developments currently underway in a number of states are rapidly approaching this goal.

Data entry, storage and retrieval

Several approaches have been taken to resolve the problems associated with entering data from vital record forms. In traditional processing, the certificate forms are completed in the field—at the hospital, clinic or other place of occurrence—and submitted to the state health agency for coding and keypunching. This requires substantial resources in terms of staff, equipment and storage space for these records at the state level. As such resources become more costly to state agencies, alternative methods of getting the data into electronic form have to be considered.

One method currently being employed by several states is to do the coding and data entry at the source. Records are then transmitted electronically over telephone lines, or the data are copied and submitted to the agency on floppy disks. Since in the United States nearly all births occur in hospitals, submitting birth certificate information electronically not only eliminates the workload at the state agency but provides more timely and accurate data. This process employs a microcomputer, generally a personal computer (PC), located at the hospital which contains a software package to display the particular state's certificate form and to perform certain data editing functions. Hospital staff enter the birth information on the displayed form which then undergoes an editing process on the PC. Edit checks include verifying that data fields contain only alpha or numeric data and that codes for selected variables are in the proper range; logical checking on variables such as mother's age, weight of infant, and date of birth; and checking for internal consistency of the data.

This approach eliminates the need for a centralized coding and data entry staff, minimizes the need for interchange of certificates with the hospitals for corrections or incomplete data, and significantly improves the timing and availability of the data for both registration and vital statistics purposes. Estimates from the various states surveyed indicate that data entry requirements are reduced by 40 to 60 percent or more at the state agency level, coding is reduced by 50 percent, and the timeliness and availability of the data are increased by nearly 80 percent. These estimates reflect differences for these types of operational activities following implementation of automation. Costs of the equipment and the software for this type of application range from $2,500 to $4,000 depending on the size of the system. Most states anticipate including death records and fetal death records in the system, with an additional cost of only the software packages for each record type. The latter is estimated at $500 to $900 for each type of record. No additional equipment is required for this upgrade. Similar costs for equipment and software

would be required for each site at which the data are entered or accessed (hospital, clinic, funeral establishment).

A second approach being taken in several states is the use of optical disk systems for record storage, retrieval and printing of copies of records. Certificates completed in the field are forwarded to the central agency for coding, scanning, and indexing for entry into the system. This type of system produces a high quality image that does not suffer from the deterioration that occurs with paper documents or microfilm. A high resolution scanner is used to electronically capture record images, which are stored on optical disks. A computerized indexing system provides for automatic searching of the documents, with the amount of data entry for the index directly related to the number of variables needed for record identification.

The optical disk system provides a permanent storage medium for documents which requires very little physical space, has excellent reproduction quality and, when integrated with a computerized index, offers document retrieval at electronic speed. It also offers the capability to enter statistical data at the time of indexing to allow for the development of vital statistics data along with the processing of routine registration activities. As with microfilm, optical disk provides an exact copy of the original document (and generally of higher quality) and incorporates the full capabilities of the computer to locate, link and process the documents. Major savings in data entry staff, time and resources are also realized. In this way, a fast, cost-effective and efficient processing system can be implemented to meet the registration demands of the public and to provide a capability for preparing relevant vital statistics.

Costs associated with optical disk systems vary widely, depending on the size of the system and the applications to be used. The growing incidence of PC-based optical disk systems makes their use in various applications financially feasible. Including scanning equipment, computer and processors, the cost ranges from $10,000 to $100,000 or more, depending on the size of the application.

Other types of systems are also being developed. Several states have opted for a computerized record storage, processing and retrieval system for the registration program in which the complete certificate data—birth, death, fetal death, marriage, divorce—are keyed and stored on mainframe computer systems. This approach has a significant data entry cost associated with it, particularly if multiple years of data are to be inputted into the system for both registration and statistical purposes. However, it does afford the greatest degree of flexibility in terms of total document processing. Copies of the record can readily be prepared, corrected and mailed; complete indexing parameters are available for record matching and retrieval; updating of data is fully automated; information is readily available to multiple users and for multiple uses; and statistical processing and analysis are readily accommodated.

Indexing of records

A key element in each of the systems described above is the indexing of the stored record/data. In all cases, states with automated systems have a computerized index for record search and retrieval, whether the systems are computer-based, optical disk or microfilm systems. Information contained in the index generally includes name of the individual, date of the event (birth, death), residence of the individual, and place of occurrence of the event. Other variables—sex, race, names of parents—may be included as deemed necessary. In some instances, the index contains sufficient information to immediately print a short form certification of the record for mailing to a client.

Different methods for searching are used by states, including a straight alphabetical search on the surname and/or given name, use of the Russell Soundex code (2), which can be

generated automatically by the computer, New York State Identification and Intelligence System code (3) or other algorithms based on the name of the individual. In conjunction with the alphabetic name or code, the date of the event and place of occurrence are usually all that are needed to locate the record. In an index containing over 5 million records, an average search time is under 5 seconds. Of course, this depends on the size of the computer and the algorithm used but generally the search is very fast. For indexes which contain sufficient data for the preparation of a certification, a certification form can be printed simultaneously.

The savings in time and staff of a computerized index as compared to manual searching using index books or microfilm/microfiche-based indexes are significant. The cost of disk storage has decreased to the point where a computer index on either a mainframe or a microcomputer system is a highly cost-effective and efficient method for record searching and retrieval. The algorithms employed must be carefully considered since they can be dependent upon the naming conventions used. For example, the Russell Soundex code system eliminates all vowels contained in a name in arriving at the search code. This may not be effective for record searches in countries where multiple vowels commonly occur in family names.

Electronic birth record

The major area of current development in many states is the electronic birth certificate. Births account for the largest volume of records, and they require the greatest amount of registration activity, thus representing the single most cost-effective record for automation. The amount of information collected on the birth certificate, the number of copies issued annually, the amount of processing for corrections and updating, and the variety of applications for use of this record far exceed those of all the other types of vital records. Because of these characteristics, states are choosing the electronic birth record as the first to be computerized in the registration system.

There are a number of advantages to computerizing the birth record. First and foremost is the fact that the birth record is completed at the originating source i.e., the hospital. This affords a convenient location to place equipment, provide training, and establish standards for operating the system. In doing so, immediate benefits are realized with significant reductions in transcription errors, incomplete reporting of data, need for followback queries, and lost certificates. Once the data are entered at the hospital, they are immediately available to the hospital for its own use and are in a format ready for printing and for transmission to the state agency. The printed paper copy may take any route necessary; for example, it may be routed through a series of local agencies prior to final storage at the state level. However, since the data are transmitted electronically, there is no delay in the availability of the record at the state agency. Records which become lost can be instantly regenerated either at the hospital or at the state registration office without the need to reenter any of the data.

The security afforded by the electronic system is not readily reproducible in a manual system. Information received only via the electronic system is validated as an official record. Fraudulent paper copies of certificates cannot be added to the system and when attempted can be identified through cross-matching of the paper and electronic documents. Entry of data into the records can be done only by authorized staff through a series of controls on identification and password access to the computer system. Any irregularities in the system related to registration data can be quickly identified as to the terminal used and the staff with authorized access to the computer. All changes to the record are controlled through the computer entry system and can easily be restricted as to what changes can be made and by whom.

The electronic record system also affords a number of processing features which reduce the need for subsequent record corrections or changes. The audit/edit features built into many of the

systems described include spelling checks, data validation, auto-coding of selected variables such as institution and geographic locality, single entry of common data elements such as dates, and automatic calculation of variables such as length of gestation (based on dates of delivery and last menses) or conversions (e.g., pounds and ounces to grams). Each of these features saves significant processing time, reduces the need for subsequent changes to the record, and minimizes many types of errors.

In decentralized registration programs where local registration offices can issue copies of records, the computerized system provides the flexibility for local access to computer-based records. Many of the states with automated systems permit electronic access to the state's central database for the purpose of issuing record copies. Communication networks have been established whereby an authorized local registration office can access the central computer, initiate a search for a record and have the information transmitted and printed on a form in the local office. In some cases, regional offices of the state agency have been established in various locations throughout the state and can issue copies of records utilizing the central state computer system. Decentralized access and retrieval of electronic records for registration purposes represent a growing area of development.

These capabilities reflect the potential that computerized registration systems provide and differ significantly from what optical disk and microfilm oriented systems can provide. The latter systems are found in centralized registration programs where the central state agency has responsibility for issuing record copies. Electronic networking occurs internally, and access is generally restricted to the central agency. However, with the increased use of facsimile equipment, copies from these systems can be transmitted to the local agency for direct issuing of the record. In either case, the benefits of the electronic/automated record are well established.

The transmission of data from the hospital to the central state agency for the electronic birth record takes one of several forms. The data, when entered on the microcomputer at the hospital, may be copied to a diskette and mailed to the state agency. In this case, the diskettes are then uploaded to the agency's mainframe and into the birth registration database. All of the activities described above can then be performed. Generally this is the first option used when initiating remote preparation of the record. A second method is to complete the records at the hospital and prepare a database for subsequent transmission electronically over telephone lines. This approach has been implemented in a number of states primarily from hospitals having a large volume of births. This is the goal of most of the registration programs. Direct on-line access, where individual records are transmitted directly to the agency's central computer, is being considered in some areas as another option but as yet has not been implemented in the states surveyed for this report. Each of these methods allows for electronic access utilizing diskettes, computer tape files or through on-line query to the central agency database by other authorized state and local health agencies. Conditions of access and use by these other agencies are controlled by established rules and regulations or by statute.

Overall, the electronic birth record, where it has been employed in the states, has minimized the need for manual intervention in the processing of the record. There have been significant improvements in the (1) quality of the data as received from the hospital source, (2) timeliness of receipt of the data, (3) efficiency in processing changes and corrections, (4) security and confidentiality since fewer staff are necessary to handle the records, (5) availability of the data for multiple use and users, (6) search and retrieval of documents and (7) physical storage requirements and handling. The added benefit of having immediate data for the preparation of certification forms and the compilation of vital statistics data makes the automated system a realistic goal for most registration programs.

Automated registration activities

Other automated registration activities with regard to the electronic record have been developed in state systems, including transaction processing, billing and accounting features, and direct mailing of both registration materials and information related to maternal and child health. These are labor-intensive activities which readily lend themselves to computer processing. One state's summary of the types of activities which are automated include:

1. *Key entry*

- Edits records (replaces former manual edits)
- Writes letters requesting corrections for errors (replaces manual system)
- Codes entries automatically (replaces manual coding system)
- Allows on-line update for corrections and amendments (replaces manual coding and batch entry)
- Allows entry of indexes for historical records

2. *Correspondence*

- Allows entry of administrative information for all requests for documents (replaces 5-part paper receipt form)
- Allows tracking requests in response to inquiries from the public or from law enforcement

3. *Fee tracking and accounting*

- Accounts for all fees received (replaces paper documents needed for audit purposes; partial replacement for manual deposit requirements)

4. *Issuance of certified copies*

- Allows immediate search and issuance of birth certificates (replaces manual search and photocopy of record)
- Allows legal amendments to birth records (replaces 2-part paper certified copies)

5. *Production of administrative reports*

- Indexes for use by state and local registration offices
- Fiscal reports for budget, deposits, special accounts
- Administrative workload reports for registration section
- Reports on field offices
- Notification of registration of parents

6. *"New" record system*

- Preparation of new accurate certificate following adoption or paternity action (replaces manual correction process)
- Update of database with "new" information (expedites updating of record data base)

- Cross-reference of information, new/old name, for tracking impounded records for the registrant (newly available process)
- Notification of changes to local offices

7. *Access to database*

- Provides network access to local offices (Register of Deeds, Child Support, Income Maintenance)

Each of the above computerized functional registration areas has significantly changed and improved the operation of the state's registration program. The benefits of computerization go beyond those associated solely with the registration functions. Software packages such as word processors, data base management systems and spreadsheets can be incorporated into the microcomputers used for the registration system to further enhance processing and productivity. Examples include correspondence to consumers prepared on a word processor; a series of workload statistics compiled from a spreadsheet; and integration of data from adoption or paternity records with the original birth information contained in a database management system.

Future directions

Generally, some degree of adjustment is needed to adapt an established automated system to another registration program. However, the likelihood of successfully implementing a system given the background, experience and developments that have occurred in state programs would appear to be high. It is clear that there is a need for automation in registration programs as record volumes grow, demands for services increase, and resources and funds decline. In the past, registration activities have not drawn the attention or resources that other programs have. This is changing, and new efforts are often directed at upgrading programs through the use of automation.

Costs to initiate a computerized system for registration vary widely. Many state programs have taken a stepwise approach, automating current registration functions or selected activities and phasing in older records and related functions. This reduces the need for major expenditures for data entry or scanning and indexing of records, computer equipment and software, training and redeployment of staff. For registration programs having low volumes of records, most of the processes described above can be accommodated on microcomputers. These systems contain disk storage capacities in the 100 megabyte range. Coupled with external disk storage devices, desktop microcomputer systems can range to several gigabytes of storage. Memory capacity in these systems run to several megabytes, providing ample processing and speed of operations.

Options which permit gradual movement to an automated registration system that several states have taken include microfilm systems utilizing computer-assisted retrieval (computer index) and optical disk systems. The latter also offers a computerized indexing capability for record search and retrieval. One of the difficulties associated with these systems is in error correction and updating. Changes to microfilm are difficult, usually requiring the creation of a separate record copy and subsequent storage and indexing of the new record. Current optical disk systems are also in this category, where most have "write once, read many" disk. This means separate images must be made for corrected or updated records. Computerized records can be changed instantly and a code inserted indicating the date and nature of the change. The flexibility of the electronic record is clearly superior.

Compared to manual systems, however, both microfilm and optical disk systems offer major advantages. They contain the actual image of the original record, including all signatures and dating stamps and seals that have been placed on the certificate. Computerized record copies do not contain this information in the original form.

Indexing for both types of systems is computerized and provides for rapid retrieval of a particular record. Storage space is also reduced significantly, and multiple copies can be prepared and distributed to local offices as needed. The drawback here again is with corrections and updates to the record. Overall, these systems offer significant improvements in the operation and management of registration activities, with the optical disk providing higher quality imaging than microfilm, particularly for older records. Once the original paper document is reduced to either an electronic image or a copy of the original image, subsequent processing for registration functions is clearly enhanced.

Applications for developing countries

Computerization specifically in the registration area is not widespread in either developed or developing countries. However, many of the applications, computer programs and systems development as described above for U.S. states may be useful elsewhere in programs considering implementation of automated systems for registration. The extent to which these applications have utility for registration systems in developing countries is significant, primarily in those instances where development has been done on microcomputer systems. The capabilities of these systems today rival those of mainframe computer systems of only a few years ago. Computer memory, disk storage and processing speeds are such that only the largest national registration programs may not be efficiently maintained in this environment.

Countries which have considered moving to automated registration have often looked to the mainframe computer as the means to implement the system. This is not a requirement with today's technology. In many situations, microcomputers can do the entire range of functions to be automated including record storage, indexing, updating and correction of records, administrative and fiscal recordkeeping, billing and receipting for services and copies of records issued, and tracking of related transactions. These functions are readily adaptable and have been used in the microcomputer systems in several states.

The main difficulty in implementation of automated systems, given equipment availability, relates more directly to collecting and recording the data on the certificates. Serious problems exist in many countries in getting the event reported at the local level and subsequently transmitting the record to a central processing office. This is a principal concern that must be resolvable prior to committing resources to an automation plan. The optimal situation is one where both of these activities are developed concurrently so the system can be structured to accommodate all of the requirements of the registration process.

Procedures such as the estimation of expected numbers of birth and death records from a particular geographic area can be built into the system. The comparison of the expected number for an area with the reported number of events would automatically note when discrepancies arose. This would then be used for followback to the local area to determine any reporting problems. Such built-in checks serve to quickly identify problems and result in improved registration and service, since ultimately the benefit of having an officially recorded document is for the individual and family.

There is potential for adapting computerized systems developed in one country for use in another—vital registration has common elements, regardless of the area. Birth and death certificates contain similar data items, both demographic and medical; need for record copies is

universal; and processes related to amending or correcting records are also common to the registration system. Hence, where these have been implemented, the transition to, and implementation in other countries is facilitated. Vital (civil) registration provides a unique, if not identical framework internationally for sharing common interests, resolving common problems, and realizing common goals. Certainly the area of computerization represents a common thread relevant to registration programs. The degree to which the benefits of this technology can be achieved requires continuing communication, interaction and interchange among the members of the registration community worldwide.

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